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TRANSACTIONS

OF THE

WISCONSIN

STATE HORTICULTURAL SOCIETY.

PROCEEDINGS, ESSAYS, AND REPORTS

AT THE

ANNUAL WINTER MEETING,

Held at Madison, February 2, 3, and 4, 1875.

MADISON, WIS.:
E. B. BOLENS, STATE PRINTER.
1875.

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LIST OF OFFICERS.

1875.

PRESIDENT.

A. G. TUTTLE, - - - - - - - - - - BARABOO.

VICE-PRESIDENT.

J. M. SMITH, - - - - - - - - - - - GREEN BAY.

RECORDING SECRETARY.

F. W. CASE, - - - - - - - - - - - MADISON.

CORRESPONDING SECRETARY.

E. H. BENTON, - - - - - - - - - - LE ROY.

TREASURER.

G. A. MASON, - - - - - - - - - - MADISON.

STANDING COMMITTEES.

EXECUTIVE.

J. M. SMITH, - - - - - - - - - - GREEN BAY.
HON. M. ANDERSON, - - - - - - - - - CROSS PLAINS.
H. M. THOMPSON, - - - - - - - - - ST. FRANCIS.

OBSERVATION.

1st District—H. M. THOMPSON, - - - - - - ST. FRANCIS.
2d District—J. C. PLUMB, - - - - - - MILTON.
3d District—E. H. BENTON, - - - - - - - LE ROY.
4th District—S. B. LOOMIS, - - - - - - LONE ROCK.
5th District—E. W. DANIELS, - - - - - - AURORAVILLE.
6th District—M. L. CLARK, - - - - - - NEW LISBON.
7th District—D. HUNTLEY, - - - - - - - APPLETON.
8th District—B. F. FELCH, - - - - - - - AMHERST.
9th District—E. WILCOX, - - - - - - - TREMPEALEAU.
10th District— ——— ———, - - - - - - ———.
11th District—SAMUEL ROUNSEVILLE, - - - - - SHEBOYGAN FALLS.
12th District—J. M. SMITH, - - - - - - - GREEN BAY.

NOMENCLATURE.

J. C. PLUMB, - - - - - - - - - - MILTON.
B. B. OLDS, - - - - - - - - - - CLINTON.
W. FINLAYSON. - - - - - - - - - - MAZOMANIE.
JAMES BARR, - - - - - - - - - - - JEFFERSON.

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PREFACE.

The attendance at the annual meeting of the Society, with the record of which this volume is mainly occupied, was somewhat affected by severe storms. This, however, detracted little from the value of the proceedings. Many of the papers read will be found of great practical value to all horticulturists in the State. While keeping most prominent the Fruit-Growing interest, it will be noticed that more than the usual attention has been given to Flower and Plant culture.

This volume has not been issued as promptly as would have been desirable. For this delay the writer is to blame. Not only is no blame to be attached to the present Recording Secretary, but it is due him to say that he has voluntarily done all in his power to aid in preparing the work for the press, although, by custom, this duty belonged to the writer. The State Printer has also promptly done his work when furnished "copy." In thus assuming the responsibility and blame for an annoying delay, it is only hoped that it will be believed that this delay was not caused by willful neglect nor lack of interest in the Society and its work.

The Society is under obligation to Secretary Case for revising a number of valuable papers, in addition to those read at the meeting, for insertion in this volume. Free use has also been made in preparing the abstract of the discussion at the annual meeting of an excellent report made by him for the *State Journal*.

G. E. MORROW.

CHICAGO, ILL., *September* 16, 1875.

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LIST OF MEMBERS.

1875.

Adams, B. F.....Madison.
Anderson, M.....Pine Bluff.

Bennett, P. S.....Appleton.
Benton, E. H.....Le Roy.

Case, F. W .....Madison.
Cate, G. W .....Amherst.

Daniels, E. W.....Auroraville.
Dwinell, J. B..... Lodi.

Emmons, J. W .....Magnolia.

Fenelon, C. M.....Waupaca.
Finlayson, Wm.....Mazomanie.
Fisher, O. W.....Waunakee.

Gibbs, Charles.....Abbotsford Quebec
Greenman, C. H.....Milton.
Graves, S. W.....Rutland.

Hambright, C. M ....Beaver Dam.
Hirschinger, Chas....Baraboo.
Hawes, Jasper.....Madison.

Kellogg, G. J.....Janesville.
Knight, Ed.....Sun Prairie.

Laing, Alex.....Milwaukee.
Loomis, S. B. .....Lone Rock.
Lund, N. F.....Madison.
Lindsay, Richard....Lodi.

Lawrence, F. S.....Janesville.

Mathews, B. A.....Knoxville, Iowa.
Morrow, G. E.....Chicago, Ill.

Olds, B. B. .....Clinton.

Parks, J. W . .....Dodge's Corners.
Plumb, J. C.....Milton.
Putnam, G. W. ....Ash Ridge.
Peffer, G. P.....Pewaukee.
Palmer, N. N .....Brodhead.
Philips, A. J.....West Salem.
Perry, Caleb.....Beaver Dam.

Reid, Wm .....North Prairie.
Rounseville, Sam...Sheboygan Falls.

Smith, J M.....Green Bay.
Smith, Edwin .....Strong's Prairie.
Sumner, C. A. Baraboo.
Stickney, J. S.....Wauwatosa.
Seymour, A. N.....Mazomanie.

Tuttle, A. G.....Baraboo.
Tuttle, A. C.....Baraboo.
Thompson, H. M...St. Francis.

Vasey, F. T.....Louisville.

Witson, David.....Madison.
Wilcox, E .....Trempeleau.

HONORARY.

Life—Dr. Joseph Hobbins, Ex-President, F. G. S., Corresponding Member Royal Horticultural Society, England, Madison; O. S. Willey, Ex-Recording Secretary; Benton Harbor, Michigan.

Annual—H. D. Emory, Chicago; —— Whiting, Franklin Grove, Ill.; L. Woodard, Marengo, Ill.; Mrs. I. H. Williams, Madison; Mrs. H. M. Lewis, Madison; Mrs. J. M. Smith, Green Bay.

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FRUIT-LISTS.

APPLES.

Five Varieties, Hardiness Only Test.—Tetofski, Duchess of Oldenburg, Haas, Plumb's Cider, Fameuse.

List For General Cultivation.—Tetofski, Duchess of Oldenburg, Haas, Plumb's Cider, Fameuse, Walbridge, Red Astrachan, Utter, Westfield Seek-no-Further, Ben Davis, Talman Sweet, St. Lawrence, Willow Twig, Pewaukee.

GRAPES.

General List.—Delaware, Concord, Lindley, Wilder, Salem, Agawam, Janesville, Worden, Eumelan.

For Trial.—Israella, Rogers' No. 3, Massasoit.

RASPBERRIES.

For General Cultivation.—Philadelphia, Davison's Thornless, Doolittle, Miami. Fastollf and Brinkle's Orange, *if protected in winter.*

STRAWBERRIES.

For General Cultivation.—Wilson's Albany.

For Trial.—Charles Downing, Burr's New Pine, Boyden's No. 30, Arena, Green Prolific, Kentucky.

PEARS.

For Trial.—Flemish Beauty, Ananas d'Ete, Early Bergamot, Bartlett, Swan's Orange, Seckel, Winter Nellis, Clapp's Favorite.

PLUMS.

For Trial.—Lombard, Imperial, Egg, Magnum Bonum, Hinkley, (or Miner,) Yellow Egg, Eldridge, Duanes' Purple.

EVERGREENS.

For General Cultivation.—Norway Spruce, White Pine, Arbor Vitæ, Scottish Pine, Balsam.

For Ornamental Planting.—Austrian Pine, Hemlock, Siberian Arbor Vitæ, Red Cedar.

For Timber.—European Larch.

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CONSTITUTION AND BY-LAWS.

Adopted at the Annual Meeting in February, 1868.

CONSTITUTION.

ARTICLE I.—This Society shall be known as the Wisconsin State Horticultural Society.

ARTICLE II.—Its object shall be the advancement of the science of Pomology and the art of Horticulture.

ARTICLE III.—Its members shall consist of *Annual* members paying an annual fee of one dollar; of *Life* members paying a fee of ten dollars at one time, and of *Honorary* members, who shall only be members of distinguished merit in horticultural or kindred sciences, or who shall confer any particular benefit upon the society, who may by vote be invited to participate in the proceedings of the Society.

ARTICLE IV.—Its officers shall consist of a President, Vice-President, Recording Secretary, Corresponding Secretary, Treasurer and an Executive Board, consisting of the foregoing officers and the ex-President, and *three* members to be elected annually; five of whom shall constitute a quorum at any of its meetings.

In addition to the foregoing officers, the president and secretaries of all local societies shall be deemed *ex-officio* members of the Executive Board.

All officers shall be elected by *ballot*, and shall hold their office for *one* year thereafter, and until their successors are elected.

ARTICLE V.—The society shall hold annual meetings, commencing on the first *Tuesday* of February, for the election of officers, for discussions, and for the exhibition of *fruits;* also, one meeting during the fall, for the exhibition of fruits, and for discussions, at such time and place as the Executive Board shall designate.

ARTICLE VI.—This Constitution may be amended at any regular meeting by a two-thirds vote of the members present.

BY-LAWS.

I. The President shall preside at meetings, and with the advice of the secretary, call all meetings of the society, and have a general superintendence of the affairs of the society, and shall deliver an annual address, upon some subject connected with horticulture.

II. The Vice-President shall act in the absence or disability of the President, and perform the duties of the chief officer.

III. The secretaries of local societies shall, by correspondence and personal intercourse with the horticulturists of their respective districts, obtain accurate information of the condition and progress of horticulture, and report to this society.

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IV. The Corresponding Secretary shall attend to all the correspondence of the society.

V. The Recording Secretary shall record the proceedings of the society, preserve all papers belonging to the same, and superintend the publication of its reports.

VI. The Treasurer shall receive and keep an account of all moneys belonging to the society, and disburse the same on the written order of the President, countersigned by the secretary, and shall make an annual report of receipts and disbursements.

VII. The Executive Board may, subject to the approval of the society, manage all its affairs, and fill vacancies in the board of officers; three of their number, as designated by the President shall constitute a finance committee.

VIII. It shall be the duty of the finance committee to settle with the treasurer, and to examine and report upon all bills or claims against the society, which may have been presented and referred to them.

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ADDRESSES AND PAPERS

BEFORE THE WISCONSIN

STATE HORTICULTURAL SOCIETY,

AT THE

Annual Meeting, held in Madison February 2, 3, and 4, 1875.

ANNUAL ADDRESS BY THE PRESIDENT,

J. S. STICKNEY, WAUWATOSA.

Gentlemen of the State Horticultural Society:

We are again assembled to exchange kindly greetings, and to enjoy a short period of friendly intercourse; which, while it is enjoyed by us as a holiday, we hope will contain enough of work, of earnest thought and general improvement, to save it from being counted as time lost. We also hope that our essays and discussions as they go out to the people will carry with them enough of interest to secure their careful perusal, and the adoption of whatever they may contain, that may add choice fruit to the orchard, flowers to the garden, or shade to the lawn. Our by-laws set forth a speech at each annual meeting as one of the imperative duties of your president. I think this fact must have escaped your notice at our last election. On a subject where there is so much still to be learned, it would seem that something new might be said; yet I find it difficult to present anything for your consideration that has not been oft repeated.

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Horticulturally, the past season has been marked by no especially important events. Its general lessons may, perhaps, be regarded as a sequel to the events of 1872 and '73, because the effects of that winter are still present, and are still largely influencing almost everything that was then in our hands. In our orchards these sad land-marks will remain for years; but in the nurseries they are rapidly passing away. As these wrecks and remnants leave our grounds, with what shall they be replaced? This question was pretty freely discussed at our last meeting, and probably most of us then decided to grow only the most hardy kinds, but in opposition to that decision will come up from our customers an earnest call for all the old, popular kinds. May we have the will and courage to be unmoved by such calls, knowing that we can thus better serve both their interests and our own. Small fruit plantations have mostly been thoroughly renovated, and are ready, as heretofore, to pay liberally for all judicious expenditures made upon them. This is but another illustration of their great importance and of their adaptability to our especial needs.

During the past season it has been my privilege to examine, in an adjoining state, some extensive commercial orchards. Ten, twenty or forty acres planted with only two or three kinds, and every tree loaded to its utmost capacity. A richer or more pleasing sight can hardly be imagined, and the contrast, both in appearance and real value between these, and orchards containing a variety of kinds will strongly impress itself upon the thoughtful observer. Where in Wisconsin can we find such orchards? If not here, why not? Must we not rather blame ourselves for a want of far-seeing business enterprise and effort? Have we not two or three varieties on which we could rely for such orchards? I think we have; and I would be willing to risk the experiment, regardless of climate. If any one lacks faith in the kinds already in our hands, then it is his duty to work earnestly, by all the means within his reach, until he finds or produces kinds that will better stand the test; and if successful in such work, he shall gain both wealth and enduring honors. I recently met the owner of a young cherry orchard in western Iowa, who reported seven hundred dollars as the past season's income from four hundred trees, planted five years ago, and then one year old. Such an orchard would relieve almost any of us from the complaint of hard times. The kind was Early Richmond; for

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variety and longer fruiting season, we might add Kentish and English Morello. We have faith in all of these, and know they may be relied upon. Why do we not plant them by the hundred or thousand?

The extensive plantations of small fruits in New Jersey, southern Illinois, and on the east shore, lead to the impression that those are peculiarly favored localities. And so they are, as to time of ripening and the advantages thus gained for northern markets; but in strawberries and raspberries, I think many localities in Wisconsin will bear favorable comparison in quality and quantity on a given area, and in the average net price per bushel. One or two quarts of raspberries per plant is a common yield; I think more common in Wisconsin than in the localities named; this is equal to seventy-five bushels per acre, worth two hundred dollars and upwards, which would be good for hard times. Is it climate that debars us from this? One or two tons of grapes per acre are often grown; these at the lowest prices would be at least encouraging. Here, climate does interpose some obstacles, but we know that vines in very favorable locations do far better than this. And it seems plain that such favorable conditions may be easily and cheaply made for many thousands of such vines.

Do not understand me as having any faith in careless planting or inattentive after-culture. "Figs from thistles" are just as probable as abundant fruit crops from starved and neglected orchards. If these things will pay for good treatment, they are entitled to it. If they did not require that care, they would be quite too common, and thus lose half their value. A living tree requires for its best development as much care and closer observation than a living animal, because the sources of its prosperity or adversity are largely beneath the surface, and thus more difficult to observe or understand. Different orchards and different trees in the same orchard will required different treatment; some having too much and some too little moisture about their roots; some too rich and some too poor a soil; some too close and stiff a soil; others too open and porous; some exhausting themselves by an overload of fruit, while others are making too much wood growth; in some excessively dry seasons, all requiring heavy mulching, or watering; in other seasons all being safe without; some require little and others much pruning. Certainly here is work for the hands, the eye and the brain of him

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who would succeed; and be assured that uniform and full success only comes in proportion as this brain and hand work is applied.

In thinking of the relative positions and distinctive fields of labor of horticulture and agriculture, I am puzzled to determine where the one stops and the other begins; perhaps some of you can enlighten me. Webster is not very explicit, only giving agriculture a little wider field, perhaps because its followers are more numerous. I am inclined to believe that there is a stronger blending of interests, more pursuits and principles common to both than we have generally supposed. If the cultivation of a garden yields more of pleasure and profit than the cultivation of a field, it is only because more force and thought and effort are concentrated on a smaller space, and it only needs increased effort and thought to extend the pleasure and profit to the whole field, and bring to the owner enlarged business ideas, a better appreciation of the capabilities and value of his soil, and more correct ideas of the uses and value of garden products; and to the laborer more constant and remunerative employment. To aid and encourage such progress is a worthy and commendable work. How can it best be done? How so well as by reducing all to the utmost simplicity, commencing at the very beginning and ask for a little thought as to the best way to do the most common things.

Soil nicely and deeply pulverized is most productive, and the implement that does such work, as compared with a poorer one, is cheap at any price. Who can tell us the loss or gain in a season caused by the difference of a single pound in the draft of a plow? Who will compute the miles of travel or the rods of fence that might be saved by a better arrangement of our farm fields? In the cultivation of our fields, long furrows and long rows are a gain over short ones; straight rows are far more pleasing than crooked ones. The garden vegetables and small fruits as too commonly grown in clumps and patches or in fence-corners and by-places, where all that is done for them must be done by the hardest kind of hand labor, too often fall into neglect and become a burden. Arrange them all in rows admitting the free use of horse and cultivator, and it is a pleasure to care for them, and they become attractive ornaments, yielding many times their cost of health-giving luxury.

The arrangement of our buildings, and our efforts at tree-plant-

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ing and landscape gardening may be very simple and inexpensive. If new buildings are to be made, while adaptation to their appropriate use should be first considered, their relations to surrounding objects must not be forgotten. If buildings already made are not well and tastefully arranged, re-arrange them, if practicable. But if not, seek to improve their appearance by a group or two of trees, or a climbing vine, so as to present a pleasing outline from the leading points of observation. In the planting of trees, arrange them in groups, as the size and form of your grounds will permit, but if straight lines are practicable, then plant in straight lines. In the selection of trees use those kinds which transplant with least risk of loss, and which make fine, vigorous trees. Maples and Elms—to be had for the digging—will do very well. Having a good beginning with these, others, possessing different qualities, perhaps more beautiful, may be added as convenient. As a ground work for all, we must not forget the lawn, and, having it well made, do not forget or neglect to give it nice and seasonable care.

These few suggestions are designed for those who have never made an effort in this direction. Make a beginning in this simple way, taking interest enough therein to read and study and plan, and you will clearly see your way onward to something far better than the inconvenient, unadorned homes now to be seen almost everywhere.

A few observations made among eastern nurseries may interest you. Among the many beautiful trees, I noted the following as being probably hardy enough for us; at least well worth a trial. Hovey and Tom Thumb Arbor Vitæs, and Mountain Pine are very beautiful and distinct, low evergreens, valuable to use in grouping with others. If not entirely equal to exposed positions, a sheltered place in groups, I think, would make them successful. Cut-Leaf Birch, Alder, Beech, Weeping Poplar, Linden, Ash, Elm, and Purple Maple; and among shrubs, Spiræa Aurea, with golden foliage; Variegated Dogwood, with green and white foliage; and Cut-Leaf Sumac, with its autumn dress of scarlet, these are all beautiful and all seem hardy enough for us. If on trial, half can be made successful, and be generally disseminated, we shall be well paid.

In admiring the acres of Tulips, Gladiolus and Lillies, at Vick's, I could not repress the thought, that a reasonable amount of the same would be quite at home and *ought to be found* in every well

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furnished nursery in the west—no climate obstacles in the way here. Among climbing plants, I saw nothing so really valuable as the American Ivy, so common in our fields, It is so unassuming, and yet always so fresh and beautiful, so patient under bad treatment, and yet responds so promptly to kindness. While longing for more showy but tender kinds, let us give this little homespun native the attention it deserves.

I found a brother nurseryman in Massachusetts, shearing the native White Pine into models of beauty, hedge rows and single trees as perfect and compact as our finest Arbor Vitæ or Red Cedar. At another point I observed two rows of White Spruce, twelve to fifteen feet high, perhaps ten years planted, one row unpruned, and fast assuming an ancient and ragged appearance, the other annually clipped, and as fresh and symmetrical as could be desired. These instances suggest the idea that we are not making the most of our evergreens. With our limited assortment of ornamentals we should plant ten or twenty times the evergreens we now do; then we should give them careful cultivation, thus keeping up a vigorous growth, and then by frequent and judicious pruning, shape that growth to the most graceful and beautiful forms.

Insect pests our eastern cousins have in abundance, as proved by hundreds of trees defoliated by the tent caterpillar, and whole orchards made bare by the canker worm. True, a little timely care would have prevented all this; and I confess to a little surprise that thrifty New Englanders should be so negligent, but having in mind a few sins of my own, I made no remarks. Several attempts at hedging with honey-locust came within my notice, but nowhere did I see anything like a successful hedge. It seems to me that this whole subject of hedging, except for ornament, is open to much doubt, and should be carefully considered before spending time or money on it. The land occupied, and labor required to keep in order, with the many failures and losses, will go far towards paying for a better fence.

In this eastern trip, I endeavored to discover what advantages the nurserymen have that are denied to us, and what there is in their plans and management that we may profitably adopt. We have equally good and cheaper lands, and usually cheaper labor than they; we are also nearer to a good market for our trees. They have a milder and more even climate, and are thus subject to much

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less winter loss. Much of this exemption from loss is also due to careful and skillful management which we would find it profitable to imitate.

They invest sufficient capital to enable them to do all work thoroughly and promptly; they enter into the business with their whole mind and strength; conduct it with as much confidence, forethought, and management, and achieve as good results as are usually reached in other callings. Would not something of this sort be an improvement upon our present management? Can we not, in a great measure, bridge over our climatic difficulties by a careful selection of varieties, and by concentrating all our energies on such things as are known to do well?

At the recent meeting of the Iowa Society, I was much interested in the reports of district committees. They have their state divided into eight or more districts, and a manager appointed in each, whose duty it is, either by correspondence or personal inspection, to gather as full statistics as possible of all horticultural matters in his district, and to report the same in detail, with remarks and suggestions, at their annual meeting. These reports were the most interesting feature of their meeting, being very full and spirited. We have depended upon the officers of local societies for similar reports, but they have usually been too brief and formal to be of much service. I would recommend the subject for your thoughtful consideration, and, if thought advisable, that we make a similar division of our state. Definite working plans should be made at this meeting, for the proper representation of our state at the American Pomological Meeting in September. All other matters needing attention will suggest themselves as our meeting progresses.

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HORTICULTURE AS ADAPTED TO WISCONSIN.

BY A. G. TUTTLE, OF BARABOO.

Horticulture, as a pursuit, commenced at a very early day, for it constituted the employment of the first of the human race. It is said the Great God himself planted a garden for the occupation of the first human pair. Certainly then as a calling it is most ancient and most honorable. Man after his creation commenced work as a horticulturist, and continued in that employment until the great act of disobedience so perverted his tastes as to lead him into other pursuits. Man before the fall was placed in the garden to *dress and keep it,* evidently showing that labor and skill were required to ensure success, even in paradise, and that neglect and slovenly culture, now so apparent everywhere, are the sad consequences of the fall.

The cultivation of fruit, its adaptation to our soil and climate, is the great question in horticulture that immediately concerns us, and to this branch of the subject I ask your attention. It has been a question with very many, whether fruit could be grown with any profit in this state, and after the sad experiences following the recent cold winter, it may still be an open question with some. It is true that we meet with reverses, and what great enterprise was ever accomplished without them? I believe they are as necessary to success in this as in any other pursuit. A succession of mild winters tends to the introduction of tender and untried varieties of fruit, and encourages us in the belief that it matters little what we plant. We had become so careless before the last severe winter that tree-planters were ready to take the recommendation of any traveling tree-pedler as to what to plant. New fruits were introduced which were claimed to be extremely hardy, without having passed any test sufficient to determine their hardiness. A constant stream of new fruits flowed in upon us from the south, a direction from which we can never hope to obtain anything of much value to us here at the north, for it is a notorious fact, that of

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all the fruits yet tested, that have proved suited to our climate, very few, if any, have come from that quarter, while a very large proportion of those originating in extremely cold countries have proved hardy with us, and nearly all that passed through the winter of 1855-56 still prove hardy and worthy of cultivation. It is true that the number of those that then and since have proved iron-clads may be few; fewer perhaps than any of us are willing to admit, but few though they are, they have been, and still are the basis upon which the orchardist must build his hopes of ultimate success. Were we to adopt the lists recommended by the different writers in our agricultural papers, there is hardly any variety to be rejected as tender. In a list, lately published in the *Western Rural*, of thirteen varieties of apples as adapted to the prairie regions of the west, not more than three of the thirteen can be said to be sufficiently hardy for the prairie regions of Wisconsin.

Our trouble has been, and still is, that we plant too many sorts. It is far better to recommend for general planting only a few well tried and extremely hardy varieties, than a multitude of kinds to be swept away by our occasional hard winters. Every kind recommended which proves tender, weakens the faith of the planter, and retards our horticultural progress. Let us throw away a host of tender and half-hardy sorts, and substitute for them seedlings like the Pewaukee, and others now growing, and long tested in different parts of the state, also a selection from the 200 new Russian apples introduced by the department of agriculture at Washington. If we do this, we shall hear no more of that periodical grumbling after every severe winter, and our confidence in our ability to raise fruit will not be so often shaken.

For nearly a quarter of a century my attention has been directed to the interest of fruit-growing as developed in this state, and at no time have I lost faith in our ability to grow that great staple among the fruits, the apple, more than sufficient for home consumption. I am not one of those who believe in the necessity of supplying their place with crabs. Let the crab apples occupy their appropriate place. In Wisconsin, or in Minnesota they never should take the place of the common apple. Let us test every new seedling of promise; let us search Russia from Odessa to Novgorod, from the Baltic Sea to the Ural Mountains for hardy varieties before we abandon the idea of successfully growing the common apple. If there

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is any portion of our state where the apple or other fruits cannot be grown, it is unfit for the abode of civilized man. I would as soon think of taking a pre-emption upon some peak of the Rocky Mountains, above the region of perpetual snow, as to make a home in such a spot.

Grapes and small-fruit can be grown almost everywhere. It is true that some soils and locations are better adapted for their growth than others. For a long time the Clinton was thought to be the only grape adapted to our climate. Success in this branch of fruit-growing has long ago dissipated that very erroneous idea, and we have come to learn that our warm summers, dry atmosphere and congenial soil furnish requisite conditions for perfection in grape culture, seldom found in any of the northern states.

I do not propose to go into details as to how and what to plant; if after all that has been written and said, any are still ignorant, let them go to some successful fruit-grower in their vicinity and learn of him. The advice of any good, practical orchardist, of long experience, is worth more than that of all the traveling tree-dealers, and, possibly, tree-growers in christendom. The first great requisite in the selection of our fruit is *hardiness;* the second is *productiveness;* the third is *quality.* These combined, form perfection. Not a few of our fruits may be classed in this list, and it should be the great aim and study of the horticulturist to increase their number.

I would say to any who have lost faith in fruit-culture, don't go about whining because you have had a few trees killed by the severe cold or by the blight; examine and see if they were of the hardiest varieties, and if your manner of culture had not something to do with their loss. Forest trees were not exempt from injury. In many parts of the state the per cent. of loss was as great among the forest trees as among those of the orchard; and yet no one will pretend that we cannot grow oaks, hickories and maples.

The time was when theories might be tolerated; a quarter of a century ought to be time enough for the establishment of some facts relative to fruit-growing. The experience of a host of successful orchardists has proved the utter worthlessness of many of the old popular varieties of fruit, and the value of such as have stood the test of all the severe winters. We have been taught also, that

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new fruits should be received with caution, and planted sparingly; that years of trial upon a variety of soils and in different localities, are absolutely necessary to prove the adaptation of any fruit to our climate; and that money invested in tender fruit is worse than thrown away.

The winter of 1872-73, was a repetition of that of 1855-56, its effects being very similar. The experience we gained then should not be lost upon us now. Then as now, some fancied that trees standing in grass land suffered less than those in the cultivated ground, and accordingly left their trees in grass until they nearly ruined their orchards. No one can grow fruit with profit from trees long in sod; the quantity will be diminished and the quality inferior. They will do better when the atmosphere is charged with abundant moisture, but then the practice long continued, will prove disastrous. It is far better to lose occasionally a tree from over cultivation than make scrubs of them, thereby lessening the quantity and injuring the quality of the fruit. Trees like humans had better die than live ingloriously and without benefit to the world.

From an examination of the condition of the orchards after the hard winter of 1872–73, through a territory extending from Lake Michigan into northern Iowa, I found as I went west the injury increased; varieties that passed the winter uninjured near the lake were badly injured in the interior, and those slightly injured in the interior of our state were badly injured or destroyed in northern Iowa. This would seem to indicate that the greater humidity of the atmosphere near the lake serves to counteract, in a measure, the injurious effects of severe freezing. It is certain that varieties of fruit can be grown near the lake, that cannot be raised in the interior, and that too, where there is no essential difference in the degree of cold.

A very large proportion of the trees killed during the cold winter of 1872–73, were killed in the root, from being planted too shallow, or not being properly protected by mulching. I am aware that shallow planting is generally recommended, but is not this one of the practices better adapted to the east, where there is little depth of soil, than in the deep, dry soil of the west? It is a fact that trees naturally root deeper here than at the east. Nature in this provides against the severe cold of winter and the drouths of summer. Let us follow her teachings. I would not recommend planting

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trees as you would set a post, but set them sufficiently deep to give a good earth protection against the frosts of winter and drouths of summer.

There is nothing now grown upon our farms that pays better, properly cared for, than the growing of fruit. Every good, healthy and productive tree, well into bearing, will yield as much net profit as an acre of good land, and fifty such trees can be grown upon an acre. There is a vast difference in the productiveness and consequent profit of different varieties. I have some trees in my orchard that have occupied the ground for twenty years, and have never produced a bushel of fruit, the trees still in good, thrifty condition; others standing near them have given me more than a hundred dollars worth, each. We want trees that are hardy and productive, and those that produce fruit of good quality. For trees of this kind no tree-planter will be in danger of paying too much; while those that prove tender and unproductive will be found dear at any price.

In our anxiety to encourage and extend the cultivation of fruits, let us not forget the flowers. Our broad prairies and beautiful groves were gorgeous with wild flowers before they became the abode of the white man. These have been crushed out by the tread of civilized feet; let us supply their place by cultivated ones in variety and profusion. The care and cultivation of flowers is woman's appropriate work. Are there any who forego the pleasure of their cultivation for fear of soiling their delicate fingers by contact with the soil? Those soft, white hands are far too expensive a luxury when obtained and preserved at the sacrifice of physical strength, health and rational enjoyment. Is there a young man, with soft hands and softer head, who fancies that manual labor is degrading, and that he is too delicately constituted for good, honest toil, let him go, select some spot on this broad earth, plant it with fruits and flowers, and trees, for ornament and shade, make a home, a very Eden in loveliness, and he will not have lived in vain.

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HORTICULTURAL PROGRESS AND PROSPECTS.

BY J. C. PLUMB, MILTON.

Having passed the thirtieth anniversary of my initiation into the practical labors of the nursery, I have thought it well to retrospect the past, look over the present condition, and give my impression of the future of the horticulture of the northwest. Reviews of practical life may not always be pleasant, but they are useful and have an important bearing upon the present and future. We measure the present by the past, and from both views form our expectations of the future.

In the spring of 1844, I assisted an elder brother in removing and selling some four-year-old-trees from his first nursery on the old homestead near Lake Mills, Jefferson county, and the following summer spent may pleasant hours in learning the art of trimming and budding, as then generally practiced. The next spring I was given the entire charge of a block of several thousand young trees, and a one-half interest in them, conditioned upon my caring for the whole during the ordinary spare hours and days of a farmer boy's life. This kind and thoughtful act of my respected father was the means of creating an interest in practical horticulture, which has never abated or grown weary, and every year since has added to this care and interest in practical tree-growing. Those first trees grown and sold in Jefferson county are many of them flourishing now, and can be pointed out in various places in the county.

The advent and progress of fruit-growing in that county, from that day to this, has its checkered history, with its share of discouragements in destruction of trees and fruit, but through the persevering efforts of its local nurserymen, and its hopeful, enterprising farmers, it is probably the banner county in the state in this enterprise, in favorable seasons producing largely beyond its own consumption. Tree-planting is on the increase yearly, and planters are yearly growing more careful in the selection of varieties adapted to its wants. The first nursery planting in that county of which

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any record remains, was in 1840, by C. M. Plumb, of seeds and young trees from Massachusetts. This was continued by myself after 1845, until 1860. In 1854 the Atwoods engaged somewhat in the business, also Geo. Hyde and L. Fargo, all of Lake Mills. Then J. C. Brayton of Aztalan, Adam Grimm and James Barr, of Jefferson, and Reynolds and Flynn, of Watertown, and lately, Mr. Whalen, of the same place, who, with our friend Steinfort, of Lake Mills, are the only professional tree-growers of that county at the present time. At no time since 1850 has there been less than two to six competing nurseries in that county. The earliest nurseries were stocked from New England, New York and Ohio. The later ones largely from Illinois and Indiana.

During the brief period of Mr. Brayton's nursery enterprise in this locality, he probably put on trial more new varieties from the south than were ever before introduced into the state; the final success or failure of which have come largely within the range of my observation in later years.

The result of this home interest and local competition, has been manifest in important ways.

1. A long series of experiments and trial of varieties.
2. The exclusion of foreign tree-agents to a remarkable degree.
3. The moderate and even low prices at which the farmers have been supplied with trees.
4. The general knowledge of and faith in fruit culture; and
5. A large area of orcharding. Few very large orchards, but almost all the early made farms are well supplied with fruit, with thousands of young orchards coming on all over that vicinity.

I have thus instanced one county in its pomological history, to show what might have been accomplished, or yet may be, by all of the counties lying south of Green Bay, by the persevering, intelligent efforts of even a few professional and non-professional fruit-growers.

The early history of fruit growing in our state has a very bright side to it, as well as a dark one. The first fifteen years before 1856 was almost without a shadow. We grew seedling peaches in profusion, and even the quince and apricot were thought to be within our limit. Greenings, Baldwins and Fall Pippins were brought to fruiting, and their large size and fine color put New England to shame in comparison. Luscious Gages and Golden Drops loaded our

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plum trees, and our currants and gooseberries weighed down with their welcome "first fruits." But alas, the borer and mildew has almost driven the latter from our gardens. The little Turk, the curculio, came this way; the canker worm and codling moth followed in its wake. The winter shocks and summer drouths exhausted vitality and thinned out our fruit plantations and nurseries. We had to cut down our fruit list to a small moiety of its old volume, and four out of five of the local nursery enterprises of the state were abandoned or have "changed base," from alluvial bottoms to our driest high lands, We have come to realize that quality must stand second in our estimate of values and quantity of fruit, and quality and adaptation of tree are of the first importance as a measure of success. So in the pursuit of the highest values we have developed a race of apples, which, with the few gleaned from other sources, give us a supply of seasonable varieties for nearly the entire state. In the progress of this new development the little Siberian of old has grown to a competing size with the Fameuse and Jonathan, and in flavor and long keeping, with our best old favorites, and where others fail, these hybrids prove their adaptation to all the reasonable demands of the state.

A review of the progress of the professional nursery-interest of the state during these thirty years, would afford many an instructive lesson, could it be written from the testimony of the actors in the scene; but some of those early in the field have found other homes and occupations, and some have passed "beyond the river," and the best record we have of all these is their "fruit." We can give at best only a brief mention of the earlier nursery efforts of this state, and this is doubtless imperfect for want of any published record of them; but from the data in hand we give the following:

1840–50.—C. M. Plumb, at Lake Mills, removed.

1842–50.—F. K. Phœnix, at Delavan, removed.

1844–60.—J. C. Plumb, at Lake Mills, removed.

1844–48.—Beecher & Bryant, Milwaukee, gone.

1846–56.—Charles Gifford, Milwaukee, deceased; Converse & Parker, Milwaukee, gone.

1846–60.—Mr. Bell, Spring Prairie, gone.

1848.—Stickney & Loveland, Milwaukee, removed; now Stickney & Baumbach, Wauwatosa.

1848–61.—Colby & Willey, Janesville, removed.

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1852.—B. B. Olds, Clinton.

1852–60.—J. C. Brayton, Aztalan, removed.

1853.—I. Gould, Beaver Dam, deceased.

1854.—G. J. Kellogg, Janesville.

1854–60.—K. & I. Atwood, Lake Mills, out; George Hyde, Cambridge, removed; L. Fargo, Lake Mills, out; A. G. Hanford, Waukesha, deceased.

1856–66.—Adam Grimm, Jefferson, out; Drake Bros., Janesville, out.

1860.—A. G. Tuttle, Baraboo; George P. Peffer, Pewaukee.

This list includes all we have any certain knowledge of, that were engaged in the business prior to 1860. Of those who came in the first decade only two remain in the business, and of the twenty-two enumerated in the first twenty years, but nine are actively engaged in the business at present. There were doubtless others who might be classed in the list of "pioneer nurserymen," but whose labors were so localized as not to be known beyond their immediate vicinity, yet these performed no unimportant part in the work, demonstrating the value of varieties and exciting an interest in the cause by their quiet labors.

During the next ten years few new and permanent nurseries were established in the southern portions of the state, but almost every town in the state among the American population had some local nursery enterprise, a little nucleus out of which, and around which magnificent fortunes loomed up like "castles in the air," but which proved like a "dream when one awakeneth." When the scorching and nipping of our variable climate came down, then the hearts of the owners failed them, and "it don't pay" was the last expression of interest. Still these temporary efforts have been the means of enlarging the orchards of their immediate locality. But we find that the more primitive founders, and the early established firms, who rose up from the repeated shocks of 1855-56, and of 1864-65, are the ones that have not been cast down by the more severe shocks of later years. We find a similar fact all over the west. Let the pioneers keep up their courage. Let transients take warning.

During the next ten years a new race of nurseries has sprung up in central Wisconsin, based on the "Iron-Clads" and "Siberians," and if they have had reverses they were not unexpected, but were met by "iron-clad" men, who are proving that up to the 44th parallel, the apple may be grown with entire success.

The greatest lesson of the past to us, the one most affecting our future prosperity, is the lesson of *adaptation*. From our early dreams

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of Golden Pippins and Greenings, we were rudely awakened, and we found that we must have other qualities besides vigor, fruitfulness and flavor, and that these, though desirable, must stand second to "hardiness." We have learned the lesson well, we have searched the horticultural world over for promising varieties. Our large range of climate and soil, woodland and prairie, gave us the necessity of extensive and careful observation and trial. We were essentially the pioneers of all the great northwest in that, in our state, two mean temperatures of summer and winter, which from the Atlantic sea-board to the west side of Lake Michigan, run 500 miles apart, here meet and cross in the center of southern Wisconsin, and diverge as much in the opposite course west of the Mississippi. The result of this, is to give us the summer of Pittsburg, Pennsylvania, and the winter of Quebec.

The effect of this great variance of climate from that of anything known east of Lake Michigan, has been our great trouble in the past. Our neighbors in Iowa in their pioneer experience commenced where we stood years after our first lessons in climatology. Our sister state of Minnesota is now learning the lesson all to herself, but with ours before her it will be a short one, and with us she will yet triumph over *all natural obstacles* and attain success in fruit-growing, of the finest apples at least.

I cannot pass this subject without more remarks upon the progress of development of varieties in the west. I know we have in our earnest efforts drawn on the east and south largely for our trial list; but with the necessity for a hardier race of fruits, came the countless new seedlings of the west, that have sprung up from the seeds of good, home-grown fruits, and that have grown up under and survived the extremes of our climate. Among these we find a few which have the essential qualities we need, and which will add to our future success immensely.

We have also entered upon a new era of hybridization of the Siberian species with our old and more southern apple. By this infusion of vital energy and constitutional vigor and toughness of fibre, with early maturity, we are growing a race of apples which rival the Sweet June and Tallman,—the Fameuse and Jonathan for size, quality and keeping, with the early maturity and hardiness of the old crab. This will extend the area of successful fruit-

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raising, for home use at least, through the north half of our state, and to regions yet untried in the great northwest.

It would give me pleasure to speak more personally of some of the old pioneer friends of the last twenty years of this record, and to have some definite information of the few who commenced their experiments at a still earlier date. Time for the first, and data for the last, we hope to have at some future time.

The further record of professional nurserymen and fruit-growers, down to the published reports of our society, will afford material for some future research, and will develop facts of much interest and profit to our successors. One fact is apparent, that in no other class of producers are the moral qualities of faith, steadfastness and perseverance more largely developed than in the nurserymen of Wisconsin.

HARDY STOCK FOR APPLE TREES.

BY E. WILCOX, TREMPEALEAU.

At the meeting of the Wisconsin State Horticultural Society in February 1874, I introduced the following preamble and resolution:

WHEREAS, The great and wide-spread destruction of apple trees the past winter from root killing has demonstrated the necessity of using more hardy roots to graft upon; Therefore,

Resolved, That we condemn the use of roots grown from seeds indiscriminately obtained, without regard to the kind of apples which produced them.

The motion being put on the adoption of the foregoing resolution, my humble aye was the only one it received. After another year's experience of my own, and as far as I am able to judge from reading the experience of others, I am still disposed to defend the wisdom of that vote. At a meeting of the Wisconsin State Horticultural Society, in 1873, President Stickney, among other things, was reported to have said, "We have some things to tie to. He had not felt very badly over last winter's experiences. It would do us all good; all are apt to get too sanguine, and fruit-growers more so, perhaps, than others. We had been growing wild; the winter killing of which we complained had been no real damage. It had only weeded out the tender varieties, of which we have planted en-

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tirely too many. Our society was recommending varieties not fit for us; all should be encouraged to at once plant all that is needed. We have varieties on which we can rely."

Now let us inquire what varieties we can rely upon, if on tender roots, and where the weeding out process is to begin, and with what? For years our society have been recommended crab apples, and a few kinds of standard apples for general planting. Among the very hardiest of these are the Duchess of Oldenburg and the Tetofsky. Stubborn, unyielding facts teach us that we need not trouble ourselves to weed these out; the winter did this for us, and every other kind too common "to tie to", if on apple roots.

A Minnesota writer, in the *Farmer's Union*, says "I have lost several hundred dollars worth of apple trees in Minnesota, and much labor, by their winter-killing, and have long sought for the cause and cure. Last spring I pulled up a nice Ben Davis tree and a Tetofski that had leaved out nicely and then withered. I found the roots black and dead, but on pulling up some Transcendents I found one or two little roots alive above the graft and all dead below. This teaches me that tender seeds will not save hardy kinds." He then goes on to say that the Siberian Crab and other hardy kinds of Minnesota apples, raised where they cannot be fertilized by tender varieties, will make the foundation for nurserymen to graft on, which will produce trees that will not disappoint the farmers, nor ruin the reputation of the nurseryman.

C. G. Patten, Charles City, Floyd county, Iowa, in giving his statement, says: "The Duchess is perfect, where not injured from the roots; Tetofski nearly so. In this section of Iowa nearly all our orchard trees, heretofore considered hardy, would have borne full crops had it not been for the injury done to their roots, and it will be a hard matter to convince a man who has lost a large part of a bearing orchard by root-killing, or a nurseryman, who has lost three-quarters of his stock from the same cause, that there is not an evident necessity for hardier roots." On giving his experience in grafting on the Transcendent and Duchess, he says. "Ben Davis, three years old, grafted on Transcendent Crab, bore full, where trees on common roots were nearly killed; it overgrows the crab. Tetofski unites badly with everything that I have tried."

In speaking of injury to trees and vines in 1872-3, C. H. Green-

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man, of Milton, Wis., says. before the Wisconsin State Horticultural Society, "In a block of Duchess of Oldenburg trees, a portion were killed or materially injured, while others in the same row were not hurt by the winter, making a healthy growth last season. My spade revealed the fact that the sound trees were on their own roots, while the sick ones were on the seedlings and had not rooted from the cion. The same is true of other varieties. The crab apples, with very few exceptions, escaped, no doubt from the reason that they were on hardy roots, as they root readily from the cion. Hence I attribute the injury mainly to dry freezing and tender roots."

Charles M. Hambright, of Beaver Dam, says: "I might add that, side by side, in our yearling-seedling block, the common apple seedlings were 95 per cent. killed, and not one of the crabs, with about the same proportion in our three and four-year-old grafts."

Scott's *Commercial Advertiser*, in speaking of the effects of the cold at Galena, says: "All one-year-old grafts in nursery rows were killed, as were also some two-year-olds, and a large percentage of older trees."

E. P. Evans, of Brownsville, Minnesota, says: "Twenty per cent. of our Transcendent and Hyslop Crabs died from root-killing, and consequently I think our iron-clads are very scarce, unless grafted on Siberian roots."

The foregoing are a few of the reports from four of our northwestern states, and if President Stickney does not feel badly over it, I confess that it has not a tendency, taken in connection with the dead trees surrounding my house, to make me feel very jolly; and if I did not think that I had something better to tie to in the future than iron-clads grafted on common apple-roots, the discouragement to me would be so formidable that I should be obliged to yield and give way to those having more faith. But I am not without hope. Like Mr. Hambright, my seedling crabs, from one-year-old to those old enough to bear, came through all right. Let me make this a little plainer. We had, say, 25 trees budded with Tetofski, one year from the bud; none of them were injured above-ground, and judging by the growth they have made since, could not have been, in the root. Within a few rods there were, say, 150 Tetofski grafted on apple-roots three years old. All, with the exception of 6 or 8, are dead, and but one of these shows any vigor. All were without mulch or other protection.

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As already stated, all were opposed to discriminating in the selection of seeds. I will not report what was said, except in regard to grafting the standard apple on the crab. It was claimed that the union would not be perfect, and but few would grow; many of these would be dwarfed etc., Our experience with many kinds of the standard apples confirms the statement that many fail, yet with all kinds of crab apples and some of the standards about the same proportion grow, as when on the common apple root, and the growth is equally good. To illustrate this, I have brought sample trees of Price's Sweet, Maiden's Blush and Briar Sweet, grafted on crab and apple stock and I think you will all agree with me that those on crab roots do not suffer in comparison; neither do those remaining at home.

I do not, however, recommend nor believe in grafting anything on crab-roots except crab apples, these being hardy above ground and uniting and growing well on crab roots. We need not with them follow the plan which I believe necessary with standard apples. Neither would it be necessary with Duchess and Tetofski if their union and growth would be satisfactory, but I apprehend here will be a failure. Much time need not be spent trying to prove the failure, far too common of all kinds of apple trees except crab-apple and perhaps Duchess and Tetofski, by the killing of the bark on the trunk and in the forks, to show the necessity for something more hardy than the body and forks of the so called Iron-Clads. And even if the tender roots could be protected by mulching or deep setting, the difficulty above ground would still exist. To meet all these troubles let us plant the seeds of crab-apples, or something equally hardy, then graft the Transcendent on these roots, using a long cion and setting deep, when, if the seedling root should be tender as claimed by some, still you have all the benefit of long cion and deep setting, and when these trees get large enough, form them into proper heads of four or five limbs, and put buds of the hardy standard apples into the limbs, well above the forks; when these have grown and healed over you may sell them to the tree-planters, who will take proper care of them, with the hope that somebody will eat fruit from them after you are done growing trees.

Here again I shall be met with the objection that the union will not be perfect; that there is no affinity; that the standard apple will outgrow the crab, etc. All this reminds me of the fellow who

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had been imprisoned for some of his misdeeds, whereupon, sending for a lawyer who visited him in prison, he related the cause of his imprisonment. The lawyer replied, "They cannot imprison you on that." The reply was, "They did imprison me on that." I think this was no plainer than that good trees can be grown by grafting or budding on Transcendent Crab, notwithstanding the oft-repeated saying, that "we can't do it." About a year and a half ago, I sent to the venerable and respected horticulturist, Charles Downing, the plan above described for propagating apple trees suited to our trying climate. In reply he wrote, "I have only to say, as every kind of apple is hardy here, we have had no experience of the kind. I should think you are on the right track, that is, obtain the hardiest root stock, then graft your hardiest kinds on that stock. Did you ever make any experiments on the wild, green crab of the woods? I had the impression that some one had and failed. The stock proved worthless, which is very singular." I had not thus experimented, but since, have read of some who have. I give a few. The *Iowa Homestead* gives the experiments of J. L. Budd, in grafting the cultivated apple on the wild crab, which, as our readers know, is an entirely different species from the common apple, and the fruit very sour and astringent. He states that "fifteen years ago he grafted the Bethlehemite apple on this crab stock, with which it united well, and bore good crops of very fair fruit. But of late years, while the apples have the appearance of the Bethlehemite, they partake largely of the astringent taste of the wild crab, and are unfit for eating." Here it seems the only objection is that the fruit after some years partook of the nature of the wild crab; if such should be the case after a number of years with the Transcendent, the probability is that more fruit would be obtained before such change, than is generally gathered from standard trees on apple roots before they die. Then, too, if the fruit was the natural size, and no worse than Transcendent in flavor, it would not be a very serious matter. Lately I saw three Perry Russet trees and three of an unknown variety grafted, as my informant told me, by him six years ago in the root of the wild crab. The trees are unusually fine, large trees; have borne fruit; all went through the winter of 1872–3 without injury, except two limbs of one of the Russets; they are hurt. No complaint about the quality of the fruit. A friend in Minnesota writes me: "There is, or was a

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pear tree standing four miles east of Erie City, Pennsylvania, that was grafted on a crab seedling, 4 feet from the ground or thereabout. I first knew this tree in 1842, and a mighty one at that time, it was not less than 35 or 40 feet high, and, I think, 14 inches through above the place where it was grafted, yet the crab stock was at least three inches less in diameter than the pear. This tree bore abundantly every year for the ten years following, except one, and I understood that it had almost invariably borne for a great many years prior to the time that I first knew it. At the end of these ten years that I refer to, I came from that state, but heard from the tree twelve years later, during which time the tree had continued to bear bountifully. It is my judgment that this tree could not have been less than forty or fifty years old when I last heard from it. I ate of the fruit many times; the flavor was good, but the pears were rather under size. I think this was more in consequence of its bearing so abundantly, than any influence of the crab root on the pear top." I have selected so far from experiments on the wild crab, believing that to be much more unfavorable for such experiments than the Siberian. We have some thousands of the different varieties of standard apples budded on crab seedlings, three years old, one year from the bud. Many of them are five feet high. I have samples here of a Duchess and a Tetofski, the first between 3 and 4 feet, and the last between 2 and 3 feet high. These two kinds it has been repeatedly asserted could not be successfully worked on the crab. They are only samples of many more, equally as good. Better than all, as I believe, for this purpose is the Transcendent. Many of these I have seen grafted on the body and limbs with standard apples, mostly three years from the graft, in different places of Trempealeau county, and generally, so far, I call them a success.

The last objection I will notice is a perfect clincher. An old nurseryman wrote me in this wise, "your hobby will row you up Salt River. Trees propagated in the way you propose will be worth at least one dollar each, by the 100, in the nursery." I have seen the old gentleman since; he says the Transcendent is the thing for this purpose, and he takes off one-quarter from the price, but still thinks I am booked for the voyage, as tree-planters will not pay so that nurserymen can afford to grow trees in this way. All I care to know is, will trees propagated in this way be a success, if they are, the public will find it out sometime, and then will pay what it will cost to grow them.

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HOW AND WHEN TO PLANT AN ORCHARD.

BY GEO. W. PUTNAM, ASH RIDGE.

In the discussion of this subject, I shall have reference mainly to that section of Wisconsin lying between the Mississippi and Wisconsin rivers, comprising the counties of Crawford, Richland and Vernon, as I apprehend that there are some peculiarities existing in this section that do not obtain generally in all parts of the state.

First, then, a brief description of the general features of the country. It is generally a broken and uneven region, consisting in some parts of long and broad ridges and abrupt bluffs, interspersed with many valleys which are often very narrow. The ridges vary in elevation from three to five hundred feet above the mouth of the Wisconsin. Much of the land in these counties was originally covered with a heavy growth of hard wood timber. There is also a great variety of soil, from the light, sandy soil of the Wisconsin valley to the rich loam and heavy clay soil of some of the ridges where oak predominates. On all of the higher lands the subsoil is clay, underlaid in many places with limestone.

Location.—The first thing that we naturally should consider is, where shall the orchard be located? Will fruit trees grow and do well on any location where the soil is sufficiently dry? I answer, no. Very much of success or failure in fruit-growing depends upon the location of the orchard. We do not sufficiently consider the fact that our climate is rather too rigorous for the apple and other fruit, and we need a favorable location to produce healthy and productive trees. I fear that the idea, that an orchard is to be a permanent thing, and should thrive and bear luscious fruit for the generations to come after us, does not control the selection of most orchard sites in Wisconsin. There are but few farms in this region but what a location can be found, where with proper choice of varieties and suitable care, a person may not have reasonable hopes of success in fruit-growing. There are several points to be considered in the selection of an orchard site, among which may be mentioned,

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elevation, aspect, protection, soil, subsoil, drainage, etc. It is a fact, known to people of observation, that the temperature of high land is less variable than that of the valleys or low lands; that is, the temperature rises higher in the daytime and sinks lower at night in the valleys than on the ridges; hence, other things being equal, a tree would be less injured by changes of temperature on the ridges than in the valleys. Again, the soil of the low land is less adapted to the growth of healthy trees than that on the high land. Frosts frequently occur in our valleys sufficiently severe in the spring of the year to injure the blossoms or young fruit, while the ridges escape entirely. We say then, select for your orchard site some of your most elevated lands.

Aspect.—What shall the aspect be? Shall it be a hill-side, facing the north, east, south or west? or shall it be flat land? My observation has been, both at the east and west, that a north or northwestern slope is not favorable to a vigorous and productive orchard. In our rigorous climate, our cold northern winds tend to evaporate the moisture contained in the trees, and, as a consequence, they make rather a stunted growth, and the vitality of the buds being injured by the same process, the trees do not produce an abundant crop of fruit. Anywhere in Wisconsin a southwestern exposure should be avoided, if you would have sound trees. As has been intimated, the orchard should be located where it will be as free as possible from sudden changes of temperature. To secure this object, I would locate it, if possible, on a gentle slope, with northeast, east or southeast exposure, in the order named, for these reasons, viz: most of our winds from those directions are moist, and their tendency is not to evaporation of the juices of the tree. The temperature of these aspects is greatest by noon, and has the afternoon to cool in, consequently the change of night is not so sudden, whereas, a southwestern exposure receives the heat of the sun late in the day, and has its greatest heat near night, and hence has a more sudden change of atmosphere, which proves detrimental to the tree.

Protection.—Protection from our cold winds has much to do with the health and productiveness of our orchards. A location that is unfavorable in many respects, may be modified and made a very fair orchard site, with ample protection. A natural protection of elevated land, or belt of timber on the north and west affords, the

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best protection. In the absence of these, a good protection may be produced by planting a few rows of fast-growing, deciduous trees on the sides where protection is desired; and a row of evergreens planted around and among the orchard trees would be of great advantage. My observation has been that a well protected orchard is more generally productive than one without protection.

Soil.—The health and vigor of a tree depends largely upon the nature of the soil where grown. A light or sandy soil does not contain the elements necessary to produce good, sound, healthy trees, if we except the Siberian family, which seems to do very well upon sandy soil. The soil that seems most congenial to the production of healthy trees, is a clay loam, or moderately stiff clay with a clay subsoil, and the best results seem to obtain where it is underlaid with limestone.

Drainage.—Any land on which water stands at or near the surface for any length of time is unfit for the production of any kind of fruit, except, perhaps, the cranberry, and I apprehend that even a cranberry marsh should be susceptible of drainage. Consequently our land for the orchard must be so situated as to have a natural drainage, or else artificial drainage must be employed, either surface or underdrain. Plowing the land very deep, throwing up ridges on which to plant the trees, and leaving a dead furrow between the rows, may answer a very good purpose.

How to Grow an Orchard.—We now come to the second part of our subject. We may have selected a good site for an orchard, with ample protection; with soil well adapted to the growth and development of trees; the site may be perfectly drained, and yet we may fail entirely of obtaining even a meagre supply of fruit. For, after all our painstaking in selecting a site, we may have planted unhealthy or worthless trees; or, as is too often the case, the orchard has been neglected, vainly thinking that all that was necessary was to select a site and plant the trees, and we were sure of having fruit. After having decided to plant an orchard, and selected the site, the next thing in order is to have the ground thoroughly prepared. The land, being in condition to work, should be plowed as deeply as possible; the surface thoroughly pulverized and put in fine condition for a crop of corn, and laid off for your orchard rows, which, in my opinion, should be from sixteen to twenty-five feet apart each way.

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Trees in the Nursery.—Perhaps I shall be pardoned if I apparently digress from the order that I have been pursuing, for I believe the success of the orchard depends considerably upon the growth and care the trees receive in the nursery. It has come to be a well established custom that apple trees are to be mainly propagated by root grafting, and be grown in the nursery from two to four years before being planted in the orchard. I prefer trees that are grown in loam or clay soil. Not soil that has been exhausted by previous crops. Nor yet would I have stimulating manure applied in large quantity, but would have soil that would produce a vigorous, but not excessive growth of wood. Would cultivate early and thoroughly, giving clean culture until the second growth starts, and then cease entirely so as to allow the wood to thoroughly ripen before winter.

The natural tendency of the healthy tree is to throw up a central or leading shoot; this should never be checked or cut back either in the nursery or orchard. The tree should be allowed to form a low head, say from two to four feet from the ground; all lateral branches that have a tendency to produce sharp or close forks should be carefully pruned off, as the tree cannot be permanently healthy that has close forks; and as a general principle, all lateral branches should be grown from yearling wood.

Selection of Trees.—It is better to obtain your trees near where you wish to plant your orchard, and thus get trees grown on soil similar to your own, and avoid injury to the roots by long exposure; provided, good trees and varieties adapted to your location can be obtained. Observe what varieties succeed best in your immediate vicinity, selecting well grown, healthy, two or three-year-old trees, avoid all such as have sharp forks, and secure such as have a good supply of healthy roots. As roots are the source from which the tree draws its moisture and sustenance, no tree can thrive and do well unless it has a plentiful supply of healthy roots.

Planting and After-Culture.—The ends of any broken or bruised roots should be smoothly cut off with a sharp knife, the lateral or side branches cut back in proportion to the roots lost in digging; but the central or leading shoots should never be cut back. If the ground has been prepared as before indicated, it will be but a small job to make the excavations for the trees, which should be of sufficient size to receive the roots straightened out in their natural

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positions, and depth enough so that the tree when planted will stand three or four inches lower than it stood in the nursery. Fill in fine earth around the roots, gently pressing it down, keeping the roots in their natural positions, wetting them freely, and finish by leaving the ground slightly elevated around the tree. When your tree is planted, mulch thoroughly with coarse litter or straw manure for three or four feet around the tree and a few inches deep to retain moisture and keep the surface cool around the tree. Give clean culture to your orchard while young; cultivate some hoed crop, beans or potatoes preferable, but on no account sow small grain in a young orchard. You might as well expect to raise a good crop of corn by planting it and then sowing it to small grain and leave it uncultivated, as to expect to grow good apple trees in a field of small grain. Very little pruning is necessary. But you should look carefully to your trees, and when you see a limb starting that will tend to form a bad fork, it should be removed. A slight thinning out of the top may be occasionally required, and perhaps as good a time as any to do this, is in the month of July, the tree being in rapid growth, the wounds soon heal.

I have thus briefly gone over some of the more important subjects pertaining to growing fruit, not presuming to discuss the subject fully, but throwing out such thoughts and hints as have occurred to me, which might be of some use to the novice in fruit-growing; hoping that some one may gather something from them that may be food for thought, or a spur to lead us on in search of more truth and enlarged views of our noble, chosen work, Horticulture.

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NEW VARIETIES OF WESTERN APPLES GROWN FROM SEEDS.

BY G. P. PEFFER, PEWAUKEE.

In former volumes of the transactions of our society, several articles, having direct reference to this subject, have been published; and let me ask at the outset, how many of us have tried to profit by the views there expressed and the plans suggested? I have heard of no one who is trying to make an advance in this direction beyond the introduction and propagation of seedlings that have sprung up by chance. We may in this way secure good varieties of fruits, but I am convinced that in order to get fruit-trees sufficiently hardy to stand our rigorous climate, and varieties that will keep the season through, we must obtain them by systematic crossing or hybridizing. We have some hardy varieties of Russian and Siberian origin, but their fruit will not keep, and it seem to me that the only way we can get the requisite hardiness, and fruit of good-keeping quality is, by using these hardy sorts as a basis to improve upon by direct fertilization or impregnation with varieties that possess the qualities we desire. In this way we can combine and perpetuate the hardiness, long-keeping and other good qualities of the parent trees.

We have many varieties of seedlings that are now bearing, and many more that have not fruited yet, but promise well, which came from seed we raised ourself, artificially impregnated with varieties that we believed would improve our hardier stock of apples; for instance, we have trees growing from the seeds of the Duchess of Oldenburg, impregnated with the Fameuse, Belmont, Westfield Seek-no-Further and Northern Spy; Heerfordshire Pearmain, with Fameuse and Rawle's Janet; Alexander, with the Green Newtown Pippin and Baltimore; Westfield Seek-no-Further, with the Domine and Queen Anne. We have also two-year-old trees from the seeds of the Tetofski, fertilized with the Jonathan, Northern Spy, Rawle's Janet, Pewaukee, Green Newtown Pippin, Esopus Spitzen-

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burg, Rhode Island Greening, Alexander, Seek-no-Further and Tallman Sweet. I noticed that where the blossoms were artificially fertilized, the process seemed to affect the flavor of the fruit in some degree, as the branch impregnated with the Tallman Sweet was quite sweet, compared with those impregnated with the Rhode Island Greening, but it did not seem to affect the size or color of the apples.

I have also trees that are just commencing to bear, raised from naturally fertilized seeds of the Fall Stripe, Fall Orange, Grimes Golden, St. Lawrence, Red Astrachan, Sour Bough and Pewaukee. One of those from the seeds of the Red Astrachan bears early red sweet apples, of good size and fine quality, and the tree is as hardy as any in the orchard. I also top grafted the Jonathan on limbs of the Duchess of Oldenburg, and planted the seeds saved from both varieties separately, but the young trees have not yet fruited.

At the fair and our winter meeting last season, a very good display of seedling fruit was made; the apples were very fine, large and showy and compared very favorably with our old varieties of grafted fruit. But few specimens of the wood were exhibited, so that it is impossible to judge as to the character of the growth, its hardiness, etc., but there is good reason to hope that among so many promising varieties, some very desirable ones will be found. The premium offered by this society for the best seedling apple has brought out quite a list of varieties. As one of the committee on seedlings, I have taken drawings and descriptions of thirty-one kinds; how many of these, or whether any will stand the test of five years trial is yet uncertain, but we hope that some will prove satisfactory, both in hardiness of tree and quality of fruit. In my opinion the past winter has been the most severe and trying one for all our trees that we have had for thirty years, and we have good reason to hope that if any of them come out this season unharmed, they will prove sufficiently hardy for our climate. I look forward with much interest to the report on seedlings which is to be handed in at our next fair, when the first premium for seedling fruit will be due. I give the following partial list of exhibitors and varieties of seedling apples, of which outlines and descriptions are on file. H. M. Thompson, of St. Francis, exhibited thirteen varieties collected by him near Lake Michigan, and south of Milwaukee,

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of good size and very fine appearance; F. S. Lawrence, of Janesville, exhibited one variety raised by F. W. Lawton; Edwin Nye, of Freedom, one; E. H. Benton, Le Roy, one; G. P. Peffer, Pewaukee, five; J. McCready, Oak Creek, four; E. Chase, Omro, one; W. A. Springer, Fremont, one; A. M. Clark, Pewaukee, one; H. Floyd, Berlin, one; J. Woodruff, Ripon, one; A. H. Topping, Darien, one; P. M. Gideon, Excelsior, Minnesota, one.

Should a few only of the varieties of seedlings brought out the past four or five years prove to be adapted to our climate in hardiness, and to our wants in quality of fruit, great benefit will result to the fruit-growing interest of the northwest. If there is a question yet as to whether we can raise apples in Wisconsin, by perseverance in originating and testing new varieties on our own soil and under the influence of our own climate, and careful observations in regard to the adaptability and quality of the varieties thus propagated, we can settle it beyond a peradventure. But as remarked before, I regard it as the easiest, quickest and surest way to accomplish this by artificial fertilization or hybridizing. I am convinced, that by judiciously crossing our hardy Russian and Siberian stock with sorts that possess the desired quality of fruit, we can soon produce trees that will stand the severity of our seasons, and will yield as sure, abundant and good crops of fruit, as any of the old varieties in the eastern or southern states.

A few words about hardy stocks for root grafting. Were our grafting stock raised from the seeds of our Russian and Siberian hybrids and other hardy seedlings grown here at the west, we should not hear much complaint about root-killing and tender stocks. If nurserymen would be particular to raise their roots from such seed, they might entirely disregard the use of long cions and the influence of the stock on the root to insure hardiness. We know that roots of this kind, and good, hardy varieties of cions will make good, healthy trees, and give better satisfaction to the farmer or fruit-grower than where long cions are used on roots grown from seeds obtained anywhere and everywhere. But some say, "this practice would ruin the nursery-business, and make the price of trees so high as to discourage tree-planting." No man can raise such trees as we need here in the northwest for the prices they are now selling at, and make a living at it. The truth is there are too many worthless trees in the market, too many tree-pedlers who

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care not what they sell, but buy their stock where they can get it the cheapest, using often a few samples obtained of some honest nurseryman, and his name to sell their trash by. This will continue until the farming public and tree-planters generally learn, as some have already, by sad experience, that good, hardy stock is cheap at double what it will cost to raise it, and that cheap trees, grown without regard to adaptation and quality, are much worse than worthless; they are money, time and labor thrown away. As a tree-pedler remarked, not long since, "the fools are not all dead yet," but it is gratifying to see that the public are getting light on this subject, and we hope that they will soon learn that those who are laboring to produce a hardy, vigorous stock of fruit-trees, adapted to our wants and our changeable climate, are at work in a good cause, for the benefit of the public, and are entitled to a reasonable compensation therefor. We are sure that they will also soon see that it is for their own interest to buy only those trees, that, from their origin in the seed to their full development, have been raised under conditions adapted to our soil and climate; then we shall reap our reward.

PICKING, PACKING AND SELLING APPLES.

BY E. H. BENTON, LE ROY.

Of the three divisions of our subject, we rank them in importance in the same order as above written; not forgetting that there is a great difference in the keeping qualities of the numerous varieties cultivated in our country, and that the seasons materially affect the life of the apple to a great extent; but we propose to show that the handling of our apples after they are grown has full as much influence in fixing the length of time in which we can have good fruit to eat, as the characteristics implanted in the apple itself.

Considering that the pecuniary result is the largest factor in the problem of fruit-raising to the majority of our farmers, we propose to condense experience and theory as far as it relates to the favorable solution of this problem; although we consider the healthfulness of it second to no other consideration in inducing us

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to write this article, that we may encourage its growing in this time of so general loss of faith in raising apples in Wisconsin. Others will inform us how best to set about the work of growing apples, we will try to give some help in making the best of them after they are grown and ready to be gathered.

AS TO TIME OF PICKING.

The theory is, that the best time to pick is, when it is in the best condition to keep, as caused or fixed by the laws of its growth, or when it has completed its growth and perfected its seed. It is readily seen that the *quality* of the apple is the best at that time, and consequently from these two considerations alone it will be seen how important it is to know when this condition in the life of the apple has fully come. And here we come face to face with the most important question on the subject, and at the same time the most difficult to determine. We frankly confess that we are unable to fix a single calendar day for a single variety of apples grown in our state on which we should pick it. There are some varieties which cannot be picked at all for keeping purposes, as they ripen along through several weeks, as the Fall Stripe; and some varieties are so tender and frail in their structure that they will not keep, by any amount of care, more than a month or two, unless put in an ice-house, or some similar condition; among which we may name the Early Harvest and Golden Sweet. Then, again, the same variety in different locations will be a fall or a winter apple; and in the same locality, in different seasons, it may be a fall or a winter apple in its keeping characteristics. We find as a general rule that dry, hot seasons hasten the ripening of all vegetation and fruits, and a wet, cool season retards them, and lengthens the season in which they arrive at maturity; and further than that also, the general characteristics of the fruit, such as color, size and flavor, are extensively modified by the prevailing character of the season, the climate, and the soil in which the tree grows.

It will be seen from the foregoing considerations that the less the number of varieties which a man grows, the sooner can he master this problem for himself, in his locality, and the sooner will he get the largest return for the labor and capital invested; and gentlemen of this convention, this is *the* goal we are all seeking to reach.

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We feel no compunctions of conscience because we leave this matter unsolved, or fail to designate a day in which to pick the Golden Russet or the Fameuse; we had no intention of taking troubles, difficulties or obstacles out of your path, but rather to incite you to their removal by the incentive of large gains both to your heads and pockets.

Some have thought that red apples, as a general rule, were the best keepers, and some have thought that the greasy character pertaining to the skin to some apples increased their keeping qualities, and still others think a thick skin is desirable, but as "all signs fail in dry weather" so all outward appearances of the apple are but skin deep, very much like beauty, and are not much to be relied on as indicating interior qualities.

HOW TO PICK.

Take none but perfect specimens. If you have time to pick all your crop, make two grades, or even three, but never, on any consideration, put imperfect or small fruit with larger or better, as it reduces the whole package to the grade of the poorest in it. The strength of a chain is not that of the stoutest, but of the weakest link, and so the worst specimens in a package will drag all the rest down to their level, and you with it in the final reckoning. They must not be bruised, consequently they must not be dropped or thrown, but laid down carefully in the vessel they are to remain in, or in which they are gathered. The hand is the best implement ever invented with which to pick apples, and consequently all parts of the tree must be accessible to the picker; the exterior by means of a step-ladder or other means of getting up in the world, and the interior, by sufficient pruning during the growth of the tree.

It is quite essential that a dry day should be selected for picking, and that there be no moisture or wet on the fruit when gathered, and finally no leaves or other foreign matter should be allowed in the package with the fruit.

PACKING.

Under this term we include the whole operation of storing and keeping after picking, until finally disposed of. We recommend as the best article to pack in, a well made, clean, new barrel, holding

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two and one-half bushels, and perfectly seasoned, and dry when the fruit is put in it. Take the barrel under the tree or near it, and taking out the head, fill it a little more than level full, and then cover with short boards so as to exclude sunshine and rain, and with two or three sticks of stove wood or some means of keeping the bottom of the barrel off the ground, leave it for a week or two to sweat and dry out, when the head must be pressed down to its place and the hoops driven on tight, and nailed at both ends. If the barrel is not level full when headed up, it must be made so, as this is *most essential* to prevent after handling of the barrel bruising the apples. Failure in this one thing of pressing the contents of the barrel, so that there shall be no loose apples, and no working in any manner of the whole or any part of them, will involve serious danger of loss of all the labor previously bestowed; and yet we find that right here is the great neglect. Right picking, and right packages are all useless if afterwards the fruit is bruised in consequence of loose packing.

We greatly prefer to put the fruit immediately into the barrel in the orchard, and head up the barrel before it is moved, to the method so often recommended of picking and carrying to some out-house or chamber to cure before packing; as it saves much labor, involves less risk of bruising, and requires less time. When the barrels are headed up, they may be laid on the side, on sticks, and left in the orchard if the weather is fair, or removed to some out-house, barn, or any place where they will be dry and cool. It is a good way to lay down some poles or rails near the cellar where they are to be kept during the winter, and lay the barrels on them, and cover them temporarily with boards. The point to be aimed at is to keep them as cool and dry as possible, and out of the cellar till winter or very freezing weather; as it is a well established fact that an apple will bear more cold and freezing without affecting its quality than any other fruit or vegetable, especially if kept in the dark and all air excluded.

Another reason for choosing tight packages is, that light and air in conjunction with warmth, rapidly change the structure or internal condition of the fruit and induce decay. The same agencies which operated in maturing and perfecting it, will, after it is matured, ripen, and afterwards destroy. It is essential to success in keeping fruit in any manner or by any method to keep this fact in

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view and to be governed by it. The writer has known apples packed as above directed and put in a dark cellar, to be frozen solid, clear through, and remain so for weeks, and on being opened in May, show no signs of injury in looks or taste.

There is no question but that it will always pay to pack apples as herein directed, even if they are to be sold immediately, and there was never so many apples on the market but there would be remunerative prices paid for such by any parties knowing how they were picked and packed.

A very simple and effective implement for pressing down the head of the barrel, as required in this process, can be made by taking two rods of one-fourth inch iron, a little longer than the barrel, make a hook at one end by simply bending over about one-half inch, and hooking the other ends into a ring about three inches in diameter, made of three-eighth inch iron, and a lever made of some stout timber about three feet long and two or three inches thick, and placing one end in the ring, previously hooking the other ends of the rods on the lower chimes of the barrel, and having a block about eight inches in diameter to lay on the head of the barrel, put the lever on this block and press the head to its place and hold it while the hoops are driven.

In commencing to fill the barrel with the apples, some advise placing the first layer all with the stem end down, which gives a fine appearance when opened, and helps to sell it; of course there is no harm in doing so, provided, you do not select larger and better specimens for that layer, as looks are to be regarded as desirable just as long as they do not deceive.

We advise in all cases of putting apples in a cellar to keep for spring and summer use, to have one especially devoted to that use, or to partition off a room in it which can be kept cold, even below the freezing point, and at the same time be dry. We repeat that there is more danger from warmth than cold, from light than darkness, from handling than from lying still. Lastly, mark each barrel distinctly with the variety and grade, on the end which should be opened.

SELLING.

The general experience points to fall selling; it has paid better for several years, and relieves the producer of any risks from freezing,

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rotting, shrinking or other injury, and gives him the money to use several months sooner, than to keep till April or May; as it has happened for several years that the price has been actually lower during the whole winter than it was at picking time, not rising much till warm weather was fully established. Whether this state of things will continue in the future can only be known by awaiting the event, but it is not advisable to hold over, unless you have a good place in which to keep them, good, long keepers, and some experience in the matter.

It is surprising how soon a reputation can be built up in business circles by fair dealing and a little common sense, well utilized. So scarce are sellers of fruit who comply with the foregoing requirements, that when one is found he will always find a market at some price, and that, will always be above the ordinary one; and quite a low grade of apples will sell better, rightly picked and packed, than the best grade poorly handled and packed. We do not believe the time will ever come when good apples, rightly picked and packed, will long go begging for a market in the hands of a man known to *fill* a barrel just as he *heads* it, and who marks the outside exactly as the contents prove on opening it. There is hardly any business so poorly conducted and in which so much dissatisfaction arises as the apple trade, and yet it is susceptible of nearly as much exactness and certainty as the pork trade or dry goods trade, and even in Wisconsin it may be made highly satisfactory, both to seller and buyer, in its pecuniary results.

It costs no more to ship a barrel of No. 1 apples one hundred miles than it would a barrel of windfalls, and any fruit-grower would make money if he rejected one-half his crop, if necessary, to get his barrels filled with sound, fair, sizable apples, if he got nothing for the rejected half; but it pays to feed them to all kinds of farm stock that will eat them, or to the vinegar mill.

We must say right here that not the least difficulty will be to get persons to pick your apples just as they ought to be; it needs a kind of moral courage, not commonly found, to reject a nice, large apple just on account of a worm hole in it or a scab on it, and yet it pays, pays largely, pay always, and to him who goes and practices the advice here given we assure satisfactory results.

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HORTICULTURE AS A MEANS OF OBTAINING WEALTH.

BY C. H. GREENMAN, MILTON.

The cultivation of flowers, plants, and fancy fruits by persons of wealth, is usually for the pleasure derived from so delightful a pursuit, rather than from the profits arising from their sale; in other words, for horticultural recreation; while the cultivation of apples, pears, plumbs, cherries, grapes, and the smaller fruits, together with the kitchen garden, is more for the dollars and cents, and their utility in every household. The desire to accumulate property is a wonderful incentive to action. Hence no industry or calling but that has its patrons, striving to secure this end, some by fair means and some otherwise. After reading Husmann's Grape Culturist, Fuller on Strawberries, Grapes, &c., and other similiar works, I do not wonder that some men in Wisconsin were induced to make a venture in horticulture. Certainly, the glowing details of large crops, with ready sales, at remunerative prices would indicate that the highway to affluence lay along the hills and dales of horticulture, strewn with beautiful flowers, and luscious fruits, where sunny slopes and cooling shades invite the inexperienced to enter upon an avocation promising so much of future wealth and happiness. Will so beautiful a dream vanish before the test of facts? By actual experience we find the apple crop to be a precarious one, to say the least of it. After setting the trees, some time must elapse before we look for any returns, provided the winter winds and frosts, together with summer suns and drouth do not destroy our trees before we get the first specimens of fruit. This first crop will usually produce sufficient codling moths to materially damage and render unmarketable all the specimens that follow in after years. The greater proportion of our apples ripen early in the season, flooding the market, which makes prices low. Hence, I conclude that the road to wealth does not run through the apple orchards. There may be exceptions, where raising apples for market may pay fair dividends even in Wisconsin, but not with the average farmer.

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As to pears, judging from former discussions in this society, where the cost of raising is placed at five dollars each, by some of the members, there can be no great profit in pear growing. The little Turk takes all the plums. While he or some one else as bad, is trying to monopolize the cherry crop.

The large profits must be found in the cultivation of small fruits. Strawberrys being the first to ripen always find a ready market. Fifteen hundred boxes per acre is more than an average crop, which at ten cents per box gives us a gross income of $150 per acre, which after two years cultivating, mulching, picking etc., renders the net income so small that few can be made to see the road to wealth running in that direction.

Raspberrys require less care, yet the net profits per acre will not warrant any one in going his last dollar on Black-Caps. Eight hundred grape vines per acre, together with stakes, attendance, interest on capital, including land, will not exceed four hundred dollars per acre, all of which can be canceled the first year after planting by layering the vines (for Husmann says so in his book). Thus, at the beginning of the second season we have an even start. The cuttings will surely pay interest on the investment and attendance. The third year, five pounds per vine might be expected, which would aggregate four thousand pounds per acre. At ten cents per pound, net, this equals four hundred dollars, multiply this by ten and our fortune is made. Figures tell well upon paper, let us see how they compare with the facts. Our ten cents net has been reduced to five cents gross, which, after deducting the express charges, commission, package, etc., would not leave a net price of more than two and one-half cents per pound, which, for ten acres, gives us $1,000.00 per annum. The cost of pruning, mulching and attendance, with interest on original investment will reach fifty dollars per acre, to say nothing of the necessary repairs of trellises. This amounts to five hundred dollars per annum, which cuts us down just one half again. These figures will vary some in different seasons, when high prices will place more money into our hands, and perhaps a luckless frost will require us to draw from some other source to foot the bill.

This season, I sent one hundred and three cases, of forty pounds each, to Milwaukee, and realized $180.50. Out of this sum, I had to pay for baskets and crates; these grapes were Concords. Dela-

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ware and Janesville netted a much larger sum. Hence, the large sums to be obtained in horticultural pursuits will probably be found in market-gardening. The profits in this department will depend upon the market, and as few persons who are adapted to this kind of labor are located near large cities, the right man in the right place will be considered fortunate indeed. From the foregoing statements no one will be greatly encouraged to make fruit-growing a business with the expectation of very large profits, yet all should be encouraged to make horticulture a prominent department on every farm and in every garden; especially, flowers and shrubs, as these beautify and refine, while fruits and vegetables add greatly to the health and pleasure of every home. I have said nothing upon the department of tree-growing, as any man who has the courage to engage in the nursery-business ought to get rich, and probably will, provided he can find some other industry or profession to help along.

FRUIT AND FRUIT TREES IN SHEBOYGAN COUNTY.

BY SAM ROUNSEVILLE, SHEBOYGAN FALLS.

The first orchards planted in this county were often set on damp, low, alluvial soils, which, generally, was just the last place on the premises upon which they ought to have been planted. The trees were grown in distant nurseries in other states, where the peculiarities of the climate and elements of the soil were at variance with ours. They were generally sold by sharp young men who were innocent (I believe they were reasonably honest) of any horticultural knowledge, and who had no interest in the matter beyond that of procuring the order upon which they obtained their percentage. The selections were made at random; sometimes indicated by chance, at other times suggested through the current of sentiment. Hans and Catharena wanted some, just like a certain tree which stood beside her father's door in the far-off Faderland. Under that tree, in the soft light of the waning moon, he with throbbing pulse had told her, and she, with parted lips and abated breath, had listened to "that old, old story." Yes, they wanted some o' them. The early orchards of this county were thus planted by the hardy,

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hopeful settlers. Many of the selections were, in a practical sense, about the poorest that could have been made. Some others proved to have been more fortunate. At that time the fruit-growers and tree-planters throughout the country had given but little thought to the adaptation of different varieties to the different soils and climate.

For the past twenty years the fruit-growers and tree-planters of the northwest have devoted a continually increasing degree of care and attention to this subject. Perhaps we of this county have reaped our full share of the benefits arising from their united labors. Yet, like poor Oliver Twist, we humbly beg for more. Notwithstanding these adverse circumstances, many of these small, early planted orchards, upon dry, clay lands, which are partially sheltered, and selected from varieties which have proven to be partially hardy, remain almost entire, producing yearly, good crops of fruit. Others planted on low, black or wet soils or in very bleak places, mostly selected from varieties not adapted to this climate, have long since "gone where the woodbine twineth." There are yet others in which are still standing here and there a tree, scattered widely apart like the milestones upon a lonely road. Some of the inscriptions thereon are written in a language which we unlettered laymen cannot quite understand. We pray you, oh wise men! that like Joseph in the time of Pharaoh, you will read and interpret for us. For the winds and the frost, and the sunshine, with all their busy fingers have been writing there,

> But whilst this muddy vesture of decay
> Doth grossly close us in, we cannot read it.

Will you look with us at these trees? We find them standing, generally upon dry, red clay lands, but not upon the wind-swept knolls, where the surface of the ground has lain bare during the winter. Among them we find Golden Russet, Rambo, Red Astrachan, Northern Spy, Tallman Sweet Fameuse etc., yet but a very few Fameuse and a few more Tallman Sweet, were set at that early planting. Probably, both included, there were not eight trees to the hundred of these two varieties. But as Webster said of Massachusetts "there they stand." The Fameuse was formerly considered a late fall or early winter apple, but when gathered and handled with care they are now often kept here, in good condition

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into the month of March. It has been constantly increasing in reputation from year to year. Perhaps there is no other tree that gives better satisfaction; possibly some of the new varieties may prove hardier than this in the orchard, but I doubt it. There are several others which are hardier in the nursery, among these I would name Ben Davis. We have never put out grafts of any tree whatever which resisted the action of the frost during the first winter after planting to a greater degree than this. We consider it very hardy up to eight years old, and here my acquaintance with it ceases. Five years ago we had a bed of yearling apples which made a large growth during the summer and continued to until late in the fall. Among them were White Winter, Pearmain, Golden Russet, Fameuse, Red Astrachan, William's Favorite, Tallman Sweet, Smith's Cider, Haas, Duchess, Fall Stripe, Ben Davis, Tetofsky, Hyslop and Transcendent Crabs, and several other varieties. In the spring we ploughed up the entire lot, except a part of the Tetofsky and Tallman, and all of the Ben Davis. The last mentioned were injured but very little, either in root or branch. Perhaps three-quarters of the Tetofsky and Tallman were killed. We would like to have sold the balance of the whole lot for a bundle of good rye straw. The Tetofsky, Duchess and the crabs were apparently sound above the splice, but the roots were utterly killed. The reverse of this was the condition of all the other varieties; they were all stricken with death, at either one end or the other.

This is one paragraph from the page of experience, put the story of the whole page together and it would be that the Duchess, Tetofsky and Ben Davis (in the order in which they are mentioned) will, in this county, withstand a greater degree of frost up to eight years of age than any other varieties with which we are familiar, beyond this I am not acquainted with them. Let us watch and wait for time to tell us more.

From the tenth of August until about the middle of December, there are usually home grown apples in our markets in great plenty to supply all the wants of the people. Plymouth probably supplies a greater share of them than any other town in the county. A few of the principal varieties are Red Astrachan, Duchess, Early Red, Fall Stripe, William's Favorite, Autumn Strawberry &c. From the middle of December the market is not so fully supplied. From the first of March until about the tenth of May there

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are usually Tallman Sweets in plenty, and a few Golden Russets. This exhausts the principal stock of our home grown fruits, From the middle of December until the ripening of the early fruit in August the wants of the community are but partially supplied, unless through shipments. To fill this vacuity I think Fameuse is certainly one, but tell us, ye fruit fathers of the commonwealth! with what to fill the list to give us plenty of fresh fruit in variety and succession the whole year through. Give us trees that will stand the test of time, that will laugh with beautiful crops in autumn, that green and young, still will stand, long after the arm which planted them lies at rest. Aided by the experience and close attention of the tree-planters all over the northwest the society has seemingly made large advances in this direction. They have in some measure taught us what to plant and what to reject, but in truth and in fact, they have only passed through the gateway which opens into this wide field in which the great bulk of their legitimate labor lies. Many new varieties are being carefully tested, "all their faults observed, set in a note-book, learned and conned by rote." Some have been weighed, found wanting and consigned to the brush-heap. Others, closely watched, are still in quarantine, while others still, with the certificate of the horticultural doctor, have started out upon their travels. Many of us believe there are large possibilities lying in this direction which with pains-taking labor may be attained.

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PROGRESS IN THE MARKET GARDEN.

BY J. W. SMITH, GREEN BAY.

Some weeks since, I received a letter from the secretary of this society requesting me to prepare a paper for the coming meeting of our society, on some subject connected with my business. Now, as the secretary is, in reality, one of the autocrats of a society of this kind, and as I was only a humble private in the institution, there seemed to be no alternative for me except to obey orders as best I could. Hence, if there is any blame to be attached to anyone for bringing my own business before you for a few moments, more prominently than I otherwise should think of doing, you must put the blame not upon myself, but where it belongs.

It is about twenty years since I commenced gardening at Green Bay. For eight or ten years of that time it was carried on in a comparatively small way, there being no outlet that was steady and reliable by which I could ship garden-produce to any outside market, and the home market not being large enough to warrant me in going into it largely. Hence my dependence for a living during those years was not entirely upon my garden, although that, as far as it went, was by far the most profitable part of my business.

During these years I was constantly looking forward to the good time coming, the time when there would be a good and reliable route opened from the Bay to the great iron region of the north. I felt very sure that when this improvement was made, someone would make money by starting a good market garden at Green Bay, as that would then be the nearest point from which they could obtain fresh fruits and vegetables. The much desired route was opened in 1865. I immediately purchased more land and commenced my arrangements for making market gardening my permanent and only business. The land that I purchased was none of it in fit condition to commence gardening upon, and, in fact, some of it required so much labor to get it in good shape and condition for raising good crops, that it cost more to fit it up than the first cost of the land, which

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was nearly $200 per acre. In fact, I suppose that the twelve or thirteen acres of land which I own had cost me not less than $5,000, when I got it in a condition where it would pay its own expenses. I have been constantly adding to the improvements upon it every year since that time, and am doing so still. When I have finished what improvements I now have in contemplation, and part of them under way, the land will represent certainly not less than $1,000 per acre, and probably more than that.

It may be thought that this is a very extravagant outlay for land where crops are the only renumeration to be expected to pay the interest or the principal of the investment. We shall see. And by the way, let me say that I have a wonderful amount of faith that our mother earth will pay back a very large interest, even upon a large investment, if it is made with care and good sense. She may not pay it back this month, and perhaps not this year, but pay she surely will. She is a bank that sometimes defers payment for the present, but never repudiates. I have made one improvement after another, and they have all paid so well that I have almost come to look upon contemplated improvements as a matter of course, and their paying as equally certain. I am well aware that there is a point beyond which it is impossible to go, or if I do, it ceases to be an improvement and is only an extravagant waste, but I have not reached that point yet, and hence we will not take time in trying to find out where it is, but return to the starting point and show the progress made in the growth of crops during a few years past.

The spring of 1866 was the first time that I planted crops with the expectation of having, or rather with a faint hope that I might have some crops to send to an outside market. My land was in an unfavorable condition; some of it had never been plowed until after I had purchased it. The portion of it which had been plowed, was still worse off, for it had been cropped until it was very much run down. In fact, I do not think there was an acre of it that would have raised 50 bushels of onions, without manure. In the spring, the brown grub, or cut worms made sad work with some of my crops, nearly ruining my onions, among other things. In the month of July, we were visited by the most fearful hail storm that I ever witnessed. The result of all was that my crops were almost utterly ruined. My entire sales for that season footed up about

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$200. This surely was not encouraging; but I had been doing something for the future, as I well knew, and I was by no means discouraged.

In the spring of 1867 I had my land in much better condition, and could reasonably expect better crops. I used more manure and used it to better advantage. I believe this season was the first of my surface manuring, except upon my strawberries, where I had practiced it for years. The results were favorable, and encouraged me to try it still more extensively. Here let me say that by surface manuring I mean spreading the manure upon the top of the ground after it is plowed, and then harrowing it in with a good fine tooth harrow. This season was much more favorable; still my crops were far from being what I desired, although the sales run from $200 of the previous season up to $1,300 this season. During the fall and winter of 1867 and 1868 I purchased more land, and extended my garden ground to its present size of about, or not to exceed, 13 acres. One can hardly imagine land that was neither rocks, nor mountains nor covered with water, to be in a more unpromising condition for making a good garden, than the most of this new purchase was. For years previous to this time I had maintained the reputation among my fellow citizens of raising very fine crops. But I certainly lost a part of my reputation for good sense in making that purchase, and I think the general opinion was, that I never could succeed in making that piece of land raise good crops. Still it had its advantages. It was near the market, as well as adjoining the land I already owned; it was capable of being made a very early soil; an abundant and never failing supply of water for artificial watering was both convenient and easily made available; there was plenty of manure to be had to enrich the soil, and at a moderate price. Hence the purchase.

In the spring of 1868 I commenced with the garden in its present size. The first purchase was now in such a condition that I might reasonably expect it to pay its own way, and something more. In this I was not disappointed. The new purchase did as I expected it would, run me considerably in debt, the crops coming much short of paying the expenses of cultivation. And here let me say, that I have never yet succeeded in making land pay its expenses for the first year or two, and sometimes not for three years. But it always

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pays handsomely after that. The season's crop of 1868 sold for $1,800.

The spring of 1869 I determined, if possible, to make the whole garden do something more than pay its own expenses. The result was an advance of from $1,800 to $2,918. Perhaps I ought to state here, that I had not then adopted so expensive a system of cultivation as I have since, and consequently it did not require so large an aggregate of sales to leave a small surplus, as it does now. But here was an advance of more than $1,100 in one season. That was surely encouraging. In addition to that, I had seen what was, to me, another very encouraging feature of the business, I could see where I had made many mistakes. Many of them I hoped to remedy the next season, and all of them soon.

The season of 1870 brought me a series of crops that sold for $3,318. This was an increase of $400, still it was not entirely satisfactory. I now determined to manure more heavily, plow deeper and cultivate better than ever before, and rely upon large crops, both to meet expenses and to pay profits. I had been very careful about both my surface and under-drains for years; but this season (1871), I put in more under-drains, and put them where but few would have deemed them at all necessary. In fact, so unnecessary did they seem to at least one of my friends, that one day, when a few of us were together, he remarked: "Smith has purchased a sand-bank to garden upon, and then under-drained it for fear of being drowned." Still I think that no other investment that I have ever made in the shape of improvements, have paid me as well as my system of draining.

During the season of 1871, I manured heavily, plowed deeper, and cultivated more carefully than ever before. The result was the crops of the season sold for $4,706. Here was another advance of $1,388 in one season, and also a practical demonstration that my improved system of cultivation was of real value.

This encouraged me so much that in 1872 I carried my efforts still further, and the result was that the season's crop brought me $5,419, an increase of $731. The question now began to come up: How much further can this be carried? I did not know, and do not yet know, but I certainly think, much further.

In 1873 I followed about in the path of 1872, and the result was, my sales reached $5,280, a falling off from the previous year of

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$139, the first failure in making at least a fair advance upon any previous year. I certainly expected an advance, but the failure to make it was caused substantially as follows: Early in the season it was very wet and cold. This always causes the roots of plants to keep near the surface of the ground. Later in the season we had dry and hot weather for a time, and the growing crops suffered much more than they would have done if the fore part of the season had been rather dry instead of very wet. To the above cause I attribute, more than to any other one, the failure to make an advance.

This brings me to my last season's work. Last spring I started with a full determination to raise larger and better crops than I had ever done before. I manured heavily, plowed a little deeper, or as near twelve inches deep as possible, and took extra care in all of the planting. We were met with a late spring for planting, and when it did come, the weather changed from winter to summer almost in a day, and became dry and hot at once. I never before had small seeds come up so poorly. Upon much of my onion ground there were not more than one-half as many onions in the row as there should have been. I could only remedy this by making the remaining ones grow as large as possible, and in this way make good a part of the loss. Other crops suffered from the same cause. It had been quite dry as well as very hot, previous to the latter part of June; but then a most terrible drought commenced, and for some weeks it seemed as if the growing crops must either dry or burn up, or both.

I had learned from previous experience the necessity of constant and continued cultivation in such cases, and now kept it up to the very best of my ability. I had a force-pump and 200 feet of hose. The pump was capable of throwing about twenty barrels per hour; although that amounted to very little compared to what was needed, still, it was kept going for some weeks, at an expense of about $5 per day, and kept up on such crops as were suffering most. I was very careful to have my cultivation as thorough as possible, and to keep every part of the garden in the best order possible to receive the rain when it did come. I think there was not a square rod of ground in the garden that was not in good condition to get the benefit of the first shower that came. Rain came at last; and fast as I have been accustomed to see crops grow for some years past, I certainly never saw that growth equaled. In forty-eight hours the

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change was so great that it scarcely seemed as if I could be in my own garden. But some of the crops were gone beyond recovery. My early potatoes were almost an utter failure; early sweet-corn and string-beans ditto. My principal crop of fall carrots, which are sown between the onions, and are expected to get fairly started before the onions ripen, and then go on and make up their growth in the fall after the onions are pulled, were dried and burned out of the ground, and off from the face of the earth. Many other crops were seriously injured. In the fall, the eastern cabbage-worms made their appearance, literally by the million, and I lost certainly 6,000 to 8,000 cabbages by their ravages. Fall turnips were injured. Yet, in the face of all these losses of some crops, and injuries to others, and in spite of all of my own mistakes, which I now see were many, in fact so numerous that I am sometimes almost inclined to apply to myself the language which Henry Ward Beecher applied to his former friend Tilton, viz., that I have "a natural genius for making mistakes," the actual sales from my garden, from the eleventh of last May up to the twentieth of January following, footed up $5,614. To this must be added the amount still on hand for sale, estimated at $175, making a total of $5,789, or an advance of $370 beyond that of the previous year. To this, if we wish to get the value of the entire crop of the season, should be added at least $150 for seeds and plants grown for next spring's planting and setting; a supply of vegetables for three families, those fed to my team and cows, and all those given away, amounting to certainly not less than $350, and I have no doubt a considerable more than that. This makes a total for the year's crop of $6,289, or an average of $483.77 per acre. This is certainly a very fair advance from $1,800, which was realized from the sales the first year I had the same area to cultivate that I now have. It is, in round numbers, 250 per cent. increase in six years. Another thing should be noted. Prices, as a general thing, were lower last season than they were six years since, so that the increase in crops must necessarily be greater than the cash sales would indicate.

Perhaps some are anxious to know something of the expense of raising such large crops, for large the most of them certainly are, and it is not boasting to call them such. The garden is charged with the manure and seeds at their cost. It is charged with all the hired help

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at just what we pay for it. It is charged with the team and driver, not at its exact cost, for I could hardly get at that, but at what I could hire a good team and driver for, during the season. For instance, last season the garden was charged $700 for the team and my son as driver. This was something more than the actual cost to me, though, perhaps it is fair. My sons, who are of age and work for me, receive as good pay for working for me as they could get at any other work, and it is charged to the garden. The younger ones work there, and it is charged for their work as much as I should have to pay a stranger to do it. My own time is charged to it at a price I think as large as any one would be willing to pay me for superintending work of that kind; and, in fact, more than they would pay, unless I attended to it more steadily than I did to my own, last season. These, and a few other items of expense last season, foot up a trifle over $4,000, although there is a very large compost heap for next season's use, made during the season which should be deducted, and will reduce the expenses to, probably, $3,900, leaving a net balance of $2,389.

Thus I have briefly sketched the progress of the garden for a few years past, not because I wished to do it, or was even willing to; but because I have been asked to do so, not only by our secretary, but by others who claimed that the public had a right to know how I had succeeded year after year in raising such uniform and large crops. My success, such as it has been, has not been owing to any high prices, or on account of any monopoly in the market, either at home or elsewhere. I have gardeners to compete with at home, and the outside world to compete with, when I send anything from home. I try to keep well posted in my business and send my crops where I think they will sell the best. I have sold quite largely in Chicago for the last year or two, and last season sold more than $1,000 worth in Indiana, most of it in the extreme southern portion of the state.

One very important element of success consists in knowing when and where to sell to the best advantage. I know of but one way in which this can be done, and that is to largely patronize the papers, not only agricultural, but others as well. The agricultural papers, I am sorry to say, are, as a general thing, not first rate market reporters. I often buy papers, the general principles of which I much dislike, simply because I can get more reliable market reports

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from them, than from any agricultural or other papers that I know of. This ought not so to be, and I hope will not remain so for any great length of time. But after all, the great and most important elements of success are large crops.

Gentlemen, we may set it down as an almost invariable rule, that large crops will pay, and the larger they are the better they will pay, and the larger will be the percentage upon the investment, provided they have been well managed. Upon the other hand small crops will not pay, and they cannot be made to pay. Hence, my efforts to get a series of large crops, and each season to make them grow larger than ever before. It is true that I do not always succeed in getting them. It is also true that I make fewer failures now than I did years ago. If I live ten years longer I shall raise much larger crops than now; and if I should see twenty years more, I expect to be a very much better cultivator in every respect than to-day.

To stand still is to be left behind. Then let our motto ever be, "upward and onward." Many of us have heads already whitening with age, and we know that we shall not always remain in our present places. Then let us so work that when, one by one, we fall from the ranks, with life's journey ended, kind friends may say of each of us, as they bear us away, "His labors are over; his life's work is finished, and it was well done." If this can be said of us, however humble our positions here, we shall not have lived altogether in vain.

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STRAWBERRY EXPERIMENTS.

BY B. F. ADAMS, MADISON.

Improvements in strawberries, of any great value, the result of experiments in cross-breeding and hybridizing dates back only from fifty to sixty-five years, commencing in England and several other countries of Europe about the same time. To produce new varieties from seeds, is a work requiring time and patience. The seeds should be sown in summer, and the young plants that appear tended with care till autumn, supplying moisture and shade if necessary, and then they must be covered with straw for winter. Set in rows and thoroughly cultivated the next season, prepares the plants for fruiting afterwards. Possibly the fruit may be promising in appearance, and perhaps not; in either case the ultimate result may totally disappoint the grower. Several years trial in the place of its origin, at least, is necessary to determine the character of a variety, and then years are required to determine its adaptability over a wide range of country. A noted horticulturist of New Jersey, after having grown seven thousand seedlings, rejected all but three which he considered valuable in his own locality, and probably thought adapted to general cultivation; a trial however, proved them otherwise. It is said that the late Seth Boyden, raised some twelve or fifteen thousand seedlings, conducting many of his experiments on strictly scientific principles, crossing varieties, guarding against accidents from the elements and insects by protecting his propagating plants during the blossoming season, but from this large number we seldom hear of any of them except the Agriculturist, Green Prolific and Boyden's No. 30. These are excellent and productive varieties, and succeed over a wide extent of country, especially the two latter. This kind hearted and persevering man, if he did not in a long life accumulate material wealth, left behind him a legacy in these varieties that will keep his memory green among the lovers of horticulture. This wonderful genius, hewing

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out with his own hands what opportunities he possessed, having made his life fruitful in useful inventions, when bending under the weight of years, in the more recreative pursuit of horticulture cheerfully and patiently labored and waited results. Said Dr. Trimble: "I visited him one hot day in July; he was in his garden barefooted and bareheaded planting strawberry seeds. Adam in the garden of Eden, before he had been bothered with mother Eve, could scarcely have looked more innocent, or have been more innocently employed. From one of these seeds came that greatest of all strawberries, Boyden's No. 30." Unostentatious and unpretending, his earnest endeavors to accomplish worthy objects in horticulture, as well as in the arts, commend him to the gratitude of his countrymen. Surely, none of his class are more worthy of a kind tribute of regard than he,

> "The soft memory of whose virtues lingers yet,
> Like twilight hues when the bright sun has set."

Downer, of Kentucky, also in his lifetime originated several choice varieties of strawberries. But why should further experiments be made to improve this fruit? Complaint is often made that dealers in plants impose upon the public, when so many new seedlings are brought out. I answer in no better way can real progress be made. More than forty years ago Hovey's Seedling had an extensive reputation; the quality of this fruit is just as good now as it was then, but how will it compare with Wilson's Albany Seedling as a fruit for general cultivation? In this respect the latter probably still surpasses all others. The men who spend time in experimenting for new varieties, are generally those who love the business, and labor not for the profit it brings, but for the pleasure and satisfaction derived therefrom, but we know no good reason why they should not be recompensed by the sale of the plants of valuable varieties.

It is not my purpose to speak of my own limited experience in raising seedlings, resulting largely in worthless varieties, but rather of the trial of some of the noted sorts in cultivation. I commenced raising strawberries at Door Creek, Dane county, thirteen years ago, when so little faith in the business existed among my neighbors that growing a family supply was considered doubtful, and the idea of selling the fruit for profit ridiculed as absurd. Only a small garden spot of my farm was used for this purpose, as the location is not convenient for marketing this fruit. A rich, black,

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prairie soil, and high, exposed location, where the winds from all quarters sweep unobstructed, were the characteristics of the farm at the beginning, but now, much changed by timber belts, orchard, vines and shrubs planted within the period mentioned.

One hundred plants of the Wilson were my first venture; other varieties were added, until a collection of about fifty kinds had been planted, not with expectations of direct pecuniary results, but to ascertain what sorts were excellent in quality, productive and hardy enough to endure this severe climate. For years I labored to keep these varieties separate, and retain them all, but from various causes, at least one-half perished and disappeared from the plantation. The standard kinds of strawberries are few. In most markets the Wilson still leads all others in quantity. Downer's Prolific, not much less productive, is also raised in large quantities near convenient markets, and the Russell, though less reliable, is highly valued by many for its great productiveness and lateness. These three varieties, early, medium, and late, have been my reliance for market during ten years past. But thousands who raise strawberries for their own tables often prefer some of the kinds of later origin, such as Boyden's No. 30, Charles Downing, Green Prolific, and Reed's Late Pine. These are excellent in quality and sufficiently productive to supply all family wants. If any have a taste for displaying monstrous fruit, the Jucunda, Austin, Agriculturist, Fillmore, and Russell can furnish the specimens.

In 1871, I planted small beds of 100 plants or less, and cultivated in hills, cutting all runners to the end of the season. Varieties: Wilson, Fillmore, Austin, Russell, Downer's Prolific, Charles Downing and Metcalf's Early. The two last named bore but little fruit, and Downer's Prolific, less than in rows; the Wilson plants averaged about forty-five berries per plant, a fair per cent., large; the Russell not more than thirty-five, but averaging much larger; Fillmore and Austin about thirty-three berries, generally large. One plant, named Georgia Mammoth, was treated like the rest, and I anticipated seeing some splendid fruit, but the mammoths were only the size of small acorns, the only remarkable trait developed was lateness, the fruit ripening about the 15th of July.

Much has been written about growing strawberries in hills for profit, but from what I can learn from observation, the majority of growers do not adopt this method. In the vicinity of the Oneida

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community, where I was informed the past season, not less than sixteen acres were devoted to the cultivation of strawberries, none of the growers adopt the hill system. The Wilson only was raised, and every field I saw was cultivated in rows.

Remarkable yields of this fruit are often reported; but heat, drought, wet weather, severe winters and poor cultivation, all combined, generally render the average yield below fifty bushels per acre, throughout the country. When all circumstances are favorable, astonishing results are produced. In 1865, from a plat of one-fifth of an acre, partly planted in the autumn of 1863 and spring of 1864, I harvested about forty bushels of splendid fruit. The land was new, and the plants had been permitted to cover the ground. Some were removed for transplanting; weeds were all pulled by hand, and straw-mulching carefully tucked around the plants in every available spot. In the autumn of 1867, I covered a three-year-old bed of Downer's Prolific with well-rotted and finely-pulverized manure from the barn-yard, and then, with a garden-rake, worked the covering down so that the leaves of the plants were visible; a snow-covering from December to April was the only protection. This bed, twelve by sixteen, yielded forty quarts of medium-sized berries. In the spring of 1868, I planted seven rows, twenty rods in length, three feet apart, and plants set fifteen inches in the rows; the ground was thoroughly manured and well plowed; varieties as follows: One outside row, Russell's; next, Fillmore; then Austin; next two rows of Downer's Prolific, and one of Early May. The remaining outside row consisted of Green Prolific and Triomphe de Gand. We picked eighteen bushels of berries, of which four bushels were Russells, two, Fillmore, one and one-half, Austin; eight, Downer's Prolific, two, of Early May; the balance consisted of Green Prolific and a few berries of monstrous Triomphe de Gand. There was quite a waste on this bed by rotting, mainly on the Austin and Russell vines.

In 1870 I planted a plat of 20 rods of ground with strawberries; rows and plants at same intervals as mentioned in the other trial. One outside row was planted with the Charles Downing, the other with Russell; two rows each of Wilson and Downer's Prolific comprised the remainder of the bed. Previous to planting, five loads of unfermented manure from the horse-stables were spread upon the land and plowed under to the depth of six inches;

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the soil was black, prairie loam, and the slope of the land southeasterly. This bed was sheltered by rows of raspberries on each side, and the north end, by an orchard; the plants were well cared for, using a horse and cultivator between the rows and hoeing thoroughly. Late in the fall the bed was well covered with straw, which was not removed in the spring; as weeds appeared they were pulled by hand. The crop was twenty bushels of beautiful berries, divided as follows: nine bushels of Wilson's; seven, Downer's Prolific; three, of Russell and one of Charles Downing.

In 1865 I planted small beds of Crimson Cones and Triomphe de Gand, cut all runners weekly during the season, and covered with straw at the proper time. The plants were wonderfully large and thrifty, but when spring came the Triomphe de Gands were all dead, also one bed of the Crimson Cones. The plants of the latter that survived bore from 75 to 165 berries each. Both of these varieties wintered well enough in covered rows, the same season, with runners uncut, in more exposed positions than these beds.

In 1868 I planted some thirty or forty Jucunda plants, in a bed made very fertile with manure, the increase of plants made a small bed, perhaps four by eight feet, I mulched with manure, as in the case of the old Downer bed; the result was eight quarts of the largest and most beautiful fruit of its kind I have ever seen. In the autumn of the same year I planted six hundred more plants of this kind, and lost all of them the following winter, also one half an acre of Wilson's and nearly that of other leading sorts that had been spring planted. The cause of the destruction, I attribute to a heavy coating of ice formed over the plants by a cold snap, succeeding an extensive thaw in January; it remained till spring.

It is said that agricultural and horticultural experiments should be repeated, but there are some so unpromising, that we do not care to repeat them. And here let me say, that no one, lacking fortitude to bear frequent disappointments should meddle with strawberry experiments. I could write a lengthy chapter on failures, but will refrain; it would be unfair however not to mention at least one as an extra sample. Several years ago, when a well written editorial puff in an agricultural journal had more influence with me than now, I read a wonderful account of a new variety, named Dr. Nicaise, thinking its reputed size would render it desirable as a curiosity if nothing more, I ordered a single plant, paying $1—cheap—found

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recreation in preparing a pailful of very fertile earth, while this plant was on its way, in the mails, from Rochester, New York. At length it came, wrapped in moss, and to guard against all accidents, entombed in a little pine box that resembled a miniature coffin. The first pang of grief was realized when it became evident that it had only just life enough to stimulate a feeble hope. It was planted in the new pail of prepared earth, so that after it should have become a horticultural wonder it could be easily transported for exhibition, but after the most tender care, it first withered and then died. Determined to make the most of this experiment, the pine box was fastened under a looking glass as a receptacle of combs and hair-brushes, so that daily, when making my toilet, I can look at it and think of that dollar and the lamented Dr. Nicaise. Still I shall continue to test new varieties undisturbed by the everlasting Yankee question, Does this pay?

Observation and experience incline me to believe that an average yield of 75 to 100 bushels of the Wilson's Albany Seedling can be obtained through a series of years on rich soil, giving the plants thorough cultivation, winter-covering and heavy mulching during the spring and summer months, till after fruiting time. But to produce the best results, in addition to all this treatment, the plants need frequent watering from the time the fruit sets till the last berry ripens. If rains do not supply this want, water should be applied to the plantation at night. To guard against late frosts, which are common, and often destroy the largest blossoms, let the plants remain covered till late in the spring, perhaps as late as the 20th of May, sometimes. My practice is to loosen this covering, but not remove it more than to permit the plants to grow through it. From the Wilson beds I take two crops, Downer's Prolific, three and sometimes four. Several varieties less productive than the Wilson are more hardy; of this class are the Fillmore and Charles Downing; varieties inferior in quality, like the Colfax, wonderfully productive, will last I know not how long on the same ground kept moderately fertile. Purdy, of Rochester, a noted strawberry grower, recommends this for shiftless farmers to cultivate. Among the many kinds that I have tried, for canning, the Wilson is preferred, but for drying, the sweet varieties, like Crimson Cone, Fillmore and McAvoy's Superior are preferable. The profits of growing strawberries for market are not as large, generally, as many

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suppose. Even when a large crop is realized, circumstances often combine to greatly diminish the receipts. Intense heat and wet weather, sometimes, will destroy large quantities on the vines, or in transportation to distant markets. An abundant supply of the fruit occasionally depreciates the price below the cost of production. Under the best culture and care, a cold winter, without much snow, and a rough spring will kill a large percentage of the plants, or impair their vigor so as to diminish the yield greatly. When a good crop has been grown, successful marketing is not altogether an easy task. Unless the grower adopts system and method in this business, exercising the greatest care and sagacious judgment, he will tangle badly when his strawberry field is red, and become so distracted in his efforts that every movement he makes will only contribute to the waste of his crop. Like every other specialty in horticultural pursuits, it yields fair profits to some and impoverishes others.

PEARS.

BY G. J. KELLOGG, JANESVILLE.

It may be somewhat amusing to you, fellow laborers in horticulture and partners in distress, to learn that my subject is *pears*. I have chosen this because the most prolific of failure of any branch of our favorite calling; and after twenty-two years of *successful failure*, experimenting and *expending*, I have at last learned the secret of successful pear culture, Before I give you the key to this success, allow me to give some facts and experience during these long years of toil.

In the summer of 1852, having returned from the land of Ophir somewhat successful, I cast about for some opening to expend a few thousand dollars; and I found it to a certainty. I had some knowledge of the climate of Wisconsin from 1835, and knew that as fine peaches as I ever saw were grown easily and with success in the early history of Wisconsin. Nor was this vision of Early Rareripes entirely dispelled till the winters of 1855 and 1856, for as late as 1853 or 1854, have I purchased Wisconsin grown peaches at one dollar per bushel.

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With this very satisfactory knowledge of our climate before 1852, in the spring of 1853 I terraced a steep side-hill for grapes, Isabella and Catawba, setting on each terrace a row of dwarf pears, a portion of which were set at the foot of the garden on rich, deep, sandy loam. In this plantation the following varieties were set: White Doyenne, Dearborn's Seedling, Glout Morceau, Bartlett, Louisa bonne de Jersey, Duchess de Angouleme, Tyson, Seckel, and many other kinds, the record of which is lost.

These trees prospered till the winter of 1855-56, when nearly all died, the few remaining trees gave some straggling specimens of fruit, becoming beautifully less year after year, until not a tree is left to tell the tale. Not satisfied with four acres as a deposit, I purchased forty more, adjacent to the city of Janesville, and in the spring of 1854, commenced planting an orchard, setting my apples forty feet by forty feet with a pear or plum between, making the trees forty by twenty feet, and every other one a pear in certain rows. The varieties planted from then, till now, were Louisa bonne de Jersey, Flemish Beauty, Vermont Seedling, Bartlett, White Doyenne, Duchess de Angouleme, Vicar of Winkfield, Tyson, Howell, Dearborn's Seedling, Belle Lucrative, Beurre de Amanlis, Beurre Hardy, Glout Morceau, Easter Beurre, Early Bergamot, Beurre Giffard, Swan's Orange, Seckel, Bloodgood, Beurre Boussock, Summer Bon Chretien, Clapp's Favorite, Beurre Clairgean, President, Urbaniste, Sheldon, Lawrence Russet, Mt. Vernon, Rostiezer, Buffam, Phillip's Seedling, and many other trees which came to hand without names. Number of trees planted, between three and four hundred. The variety that paid the best was a dwarf Louisa bonne de Jersey, long since gone to rest. The most hardy varieties were Flemish Beauty, Early Bergamot and Clapp's Favorite. The most profitable were those that never leaved out. My first planting were mostly dwarfs, late years only standards.

It is known to some of you that for ten years I have been experimenting with the wild thorn and mountain ash, as stocks for the pear. The wild thorn is difficult to graft, and the connection should always be below the ground to prevent breakage by the winds. The seed of the thorn may be readily grown, treated as apple seed, and in two or three years the stocks will do to work. Trees upon this stock are less subject to blight than upon any other. The mountain ash, both American and English, are excellent stocks for

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the pear, unite readily, ripen up early, are less subjects to blight than pear stocks, but should always be worked below ground, to prevent the borer, although a tree shaded on the body or by an evergreen may safely be top grafted. Culture given in my early experience was free and generous, but later years convinces me that rather poor soil, with clean culture and an October mulch are among the elements of success in pear-culture.

But *soil and location* are of the first and perhaps of the only great importance. Examples of this are found all over our state, but are *mostly* examples of failure. The best soil is no doubt calcareous-limestone, and every pear orchard should be sufficiently uneven to give perfect drainage. As to location, don't think every hill, ridge, lake side or mountain top is just the place, there is no doubt but the influence of Lake Michigan is beneficial for forty miles into the interior; but Lake Michigan, our clay soils, stocks or anything else is not the secret as long as the thermometer falls to 32° below zero. Gentlemen! the fact is, if you would grow luscious pears with profit, sell out and go to California.

THE MARBLEHEAD SQUASH.

BY DR. E. G. MYGATT, RICHMOND, ILL.

About twelve years since, a member of my family visited a relative in Milwaukee. Alexander Mitchell's gardener, a Hollander, had furnished the family with winter squashes. These were so highly prized that seeds were procured. They were then called the Hubbard squash. We cultivated them several years before we saw the true Hubbard, since which we have been very careful to prevent intermixture with other varieties. All or nearly all cultivators in this section have discarded the Hubbard and are raising our variety. One farmer, who had previously raised the Hubbard, but for the last six years has raised our squash, told me recently, that he considered our squash as much better than the Hubbard, as the Hubbard is better than a pumpkin. Our commission merchants write: "Your squash is very satisfactory."

I had read Gregory's work on squashes, and knowing that he was an enterprising seedsman, I sent to him, during March, 1872, a per-

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fect squash, and asked him to test it. He replied that he was much pleased with the squash and ordered four pounds of the seed. Next fall he ordered 300 pounds more of the seed, and named the squash, Marblehead, after the name of the town where he resides, as he knew no other variety like it. The Hollander, who furnished the squashes twelve years ago, has left Milwaukee, and consequently all trace through him is lost.

The Marblehead squash is not mature until winter. It improves during all the fall and early winter. During all the winter it is fine-grained, rich and sweet, many of the specimens keeping sound until late in the spring. As to the manner of cultivation, the ground should be well manured and thoroughly cultivated. It is useless to plant among corn or on poor soil. We cultivate thoroughly, and mark the rows as for corn, both ways, then plant two seeds in every hill, in every second row, the planted rows being nearly eight feet apart.

The cucumber bug is very destructive to the young squashes. Each one will have his remedy, the same as for cucumbers. Some apply ashes; some put square boxes about the hills; others kill the bugs. If not cared for, a large part of the squashes will be destroyed. Clean cultivation is essential. It is sometimes useful to direct the vines when they first begin running, but the vines should not be pulled up after they are strongly rooted in their course. It is sometimes necessary, when all the plants grow, to take one out of the hill or they may get too thick. Warm, moist weather facilitates the growth of squashes. If the summer is very dry or cool, they do not produce so much. Woodchucks must be watched, as in many localities they destroy many.

In the fall, a light, common frost does not injure the keeping quality of the squash. A hard freeze, such as we sometimes get early in October, which freezes half an inch or more, spoils them for keeping or use except for immediate feeding. Soon after all the vines are killed by a common frost and the weather dry, they must be gathered, very carefully, and handled every way cautiously and put in winter quarters. When we are ready to gather our squashes we take a stiff-backed, small saw and saw the stem off, say half an inch from the squash. If the stem is broken off it will decay much sooner. All the handling should be with the greatest care to prevent bruising. They must be dry when placed in the cellar.

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The temperature of the cellar should be cool, but freezing spoils them.

We now cultivate them quite extensively to supply the large seedsmen. We do not cultivate any other variety, summer, winter, or even a pumpkin on our farm as our special endeavor is to keep them pure. Any tendency to sport is attended to at once. Our neighbors are of the opinion that every farmer should raise from one to five acres. For table use during all the winter they are nearly equal to the sweet potato, either baked or boiled. Fed in the raw state to cows, after the seeds are out, they are found to increase the flow of milk more than any other feed usually given them. Fed raw to hogs they are nearly equal to corn. Young hogs do remarkably well on them for weeks and months. My family do not claim to have originated this squash, but hope we have done some good by saving it from oblivion.

TREES AND SHRUBS FOR SHADE AND ORNAMENT.

BY F. S. LAWRENCE, JANESVILLE.

The subject of planting ornamental trees, more especially what varieties to plant, has heretofore, at our annual gatherings, elicited considerable discussion; but not, seemingly to me, as much as its importance demands. To supply a long-felt want, and to bring the subject-matter prominently before this society once again, I have hastily prepared this article.

I shall confine myself more particularly to what I consider a list of varieties of ornamental trees that are hardy, and will prove themselves to be so, with the proper treatment and culture, and adapted to our wants, whether for the lawn, the door-yard or the street. And here let me say, parenthetically, that my firm conviction, based upon an experience of thirty year's observation and study, is that there are many trees, as well as shrubs, that are usually regarded and classed as half-hardy, and even tender, that will endure our rigorous winters, and prove themselves hardy, by the proper treatment; and that is to *mulch thoroughly* before the ground is hard-frozen. Of course, this involves trouble and some expense, but I assure you it will pay in satisfaction, in enlarging

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our list of really beautiful plants and shrubs, if in no other way. Whenever I have practiced banking up with earth around my dwarf pear-trees, I have had no difficulty in preserving them through our severest winters, and have had the pleasure of plucking luscious fruit from their branches the following autumn to pay me for the trouble. The old and trite maxim, "*heads cool and feet warm*," is equally applicable to vegetable as well as to animal life. And here let me also say, that any person who is not willing to devote a little time and trouble to the care of their trees, in giving and bestowing proper treatment upon them, ought never to have a tree in their keeping, not even an oak, much less an apple or pear tree. My theory, then, is, if you will be successful in growing a tree well, you must study its wants and adaptabilities, furnish it with the proper food, stimulate it, in a measure, by good culture and proper enrichment of the soil, and it will thrive and grow, and become a thing of beauty and joy; otherwise it will languish, decay, and finally die, and you have had your expense and trouble for nothing.

How often do we see trees that have been taken up from the depths of the forest, denuded of their branches and almost destitute of their roots; a mere straight pole as it were, and what few roots are left, exposed to the equally killing influences of frost by night or the bright sun by day, transplanted along the borders of a street or highway, in a hole scarcely large enough to receive the few mutilated roots left, into which it is thrust with a jam, the earth hastily replaced and the tree left to die; and because it would or could not live under such treatment or adverse circumstances, how often do we hear the standing remark, "It is of no use trying to set out trees; Wisconsin is no state for growing trees anyhow!" Perhaps you may think this to be an overwrought picture, but I assure you the fact exists and can be witnessed every spring in any locality, I was going to say nine times out of every ten cases, but will compromise and call it three out of every five; three-fifths I think to be a fair proportion, that are thus treated.

For a list of trees to set along the borders of a street in a city or village, or along the highways in the country, I would rank the first, the Sugar, or Rock Maple, *Acer Saccharinum*. It is a noble looking tree when fully grown, and makes a dense shade, so acceptable in a hot day to man or beast. The only objection to its being

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popular for this purpose, is its slow growth; most people are impatient to have on the start a tree that will grow up, like Jonah's gourd, in a single night, and will discard this, for some quick growing kind like the Poplars, or Cottonwood for instance, forgetting that while these quick growing trees, like some fast people, grow, flourish, and have their day, the hard maple continues to grow and rear its stately head, and stand as a monument to the memory of him, who in his wisdom transplants it.

Next to the Maple I would place the White Elm, *Ulmus Americana.* This is sometimes called the Weeping Elm, and is really a beautiful tree, and perhaps more universally used for street purposes in the northern states, than any other single variety. I need not here give a description of this magnificent tree, as you are all undoubtedly acquainted with its habits and growth. A row of trees, alternately Maple and Elm, have a very pleasing effect. Next in order comes the White Ash, *Fraxinus Americanus.* This tree is not as large in its growth as the two former, but excels them in the rapidity of its growth, and makes an excellent shade tree; its main and only objection, being its habit of dropping its leaves in early fall. The Linden or more commonly known Basswood, *Tilia Americana*, makes a beautiful shade tree, but its tendency to sucker or sprout, makes it objectionable to many; yet I would advise its culture on account of its beautiful foliage and fragrant blossoms.

For a quick growing tree for street purposes, rightly managed, I would not discard the Soft Maple, White or Red, *Acer Dasycarpum* and *Acer Rubrum.* These trees have received considerable abuse for a few years past, I begin to think unjustly, and they have been required to take a back seat in some localities for their tendency to breed or harbor the borer, a pest that is destroying them in great numbers. And here let me record another little item of observation and experience. I have never yet, in a single instance, seen a tree of this species, that was in any manner afflicted with the borer, that was standing where it first grew from the seed, or in other words, has never been transplanted. With these trees the sap begins to circulate very early in the spring, as soon as the frost leaves the ground, just the time when we begin to transplant. Now in my opinion the trouble lies in the act of taking up the tree. In most instances after the operator has digged around the tree and

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cut off its roots to loosen it, he takes hold of the body of the tree and weaves it back and forth in such a manner that it has a tendency to loosen or break the inner bark of the wood, about two feet from the ground, which in time produces decay, and the borer commences his depredations. In most, if not quite all trees that I have examined, I have found that decay and the borer commenced at that point, hence my conclusions. It is a subject well worthy of our investigation, for I dislike very much to have so worthy a tree "go to the bad" through no fault of its own.

There is another quick-growing tree that I would like to mention in this connection, that is, the Box Elder or Ash-leaved Maple, *Acer negundo.* From what I have seen of it in my grounds, I think very favorably of it. Its main objection, so far, is its very rapid growth, hence its tendency to grow crooked or sprawling as it were, being, in a measure, top-heavy while young, and apt to bend over and remain so unless straightened and tied up. I have it on trial.

The foregoing comprises my lists of street and highway trees. I have purposely left out the Poplars and Willows as I considered none of them worthy for that purpose. You will also perceive that I have left out our native Oaks, and Hickories, not that I consider them unworthy, by any means, but from the fact of the difficulties attending their transplanting. If any of you are so fortunate as to have any of them growing on the line of your streets or highways, or upon your lawns, or even in your door-yard, however small it may be, please let them remain, and not cut them down, except for a cause, for it will take years to replace them however rapid they may be in growing.

The time was, not long since, when our streets and highways were lined with the Locust, *Robinia*, but the borers came, and they "went up," or "under," and "the place that once knew them, now knows them no more, forever."

While the foregoing trees are peculiarly adapted for the particular purpose specified, they are all equally adapted to the lawn or door-yard for ornamental purposes. But in transplanting them to the lawn, care should be had in giving them plenty of room, as they are mostly large growing trees and require more space to develop themselves in perfection, and hence it would not be advisable to get them too thick, or so near together as to mar their forms, and consequently deprive them in a measure of their beauty.

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In addition to the foregoing I would not forget the Horse Chestnut, *Æsculus Hippocastanum.* This tree is said to be a native of Asia, and has been introduced into this country and largely planted for ornamental purposes. It is a slow growing tree, middling size, and when fully grown and developed it is a real beauty. It has generally been regarded as tender, or at least half hardy; but we have in this city some magnificent specimens, that have thus far withstood our severest winters. I have seen occasionally a specimen or two of the Buckeye, *Æsculus Glabra*, but as to its hardiness, I am not prepared to say, not having tried it.

A small tree for ornament, and one that is now very common in our door yards, is the Mountain Ash. *Pyrus Americana,* which usually grows from ten to twenty feet high. This must not be confounded with the European variety, *Pyrus Aucuparia*, which grows sometimes to the height of twenty to thirty feet. Both varieties are equally hardy, and are very ornamental, both in spring with their white blossoms, and in the autumn with their red and yellow berries. There is also a weeping variety of this tree, which, judiciously planted, produces a very pleasing effect.

Interspersed with the foregoing list of trees, and to produce a variety for or nament, we cannot afford to discard from our family the Conifers, or cone, bearing trees, commonly known and called Evergreens. Happily for our purpose, we have numerous varieties that are perfectly hardy; and foremost among these is the Norway Spruce, *Abies Excelsa.* This you are all well aware is a magnificent tree, rapid in growth, and by giving it plenty of room makes a splendid appearance upon the lawn, and is more generally planted for ornamentation than any other variety. The White Spruce, *Abies Alba*, and the Black or Double Spruce, *Abies Nigra*, are natives, though in my opinion, not so elegant in their appearance, especially when age creeps over them, as the former, yet they are very desirable. In addition to the Spruce we have Pines that are equally hardy. Prominent among the are these Austrian Pine, *Pinus Austriaca,* and the Scotch Pine, *Pinus Sylvestris.* These trees, though foreigners, have adapted themselves to our Siberian climate, and may be regarded as hardy as any of our own natives. Both bear transplanting equally well; are rapid in their growth, and are a decided acquisition to our list of varieties. I need not here give a

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minute description of them, as they are now so well known that it would be superfluous.

Most of our native pines, like the Red Pine, *Pinus Resinosa;* Gray or Scrub-Pine, *Pinus Banksiana*, and others which I will not now particularize, have not seemed to grow in favor for ornamental purposes. Though they are thought to be handsome by many while young, yet as they grow older they become disfigured from various causes, and, when healthy and vigorous in growth, they have the appearance of age and decrepitude. While I would not recommend them for general planting, neither will I discard them from the list of ornamental trees. In my opinion the best of our native pines is the White Pine, *Pinus Strobus.* It is the most common and best known of any of the family here in Wisconsin. It seems to grow well in most any soil, accommodates itself to all conditions, and is equally at home on our rich, dry prairies as in its native forest-home.

The Hemlock or Hemlock Spruce, *Abies Canadensis*, seems to do well in some localities, and is a very ornamental tree, rightly grown. With me, for some cause, it has not seemed to do very well; yet I shall not discard it from my grounds. Next to the Spruce and Pines come the Cedars. Our native White Cedar, or Arbor Vitæ, *Thuja Occidentalis*, is very popular with the masses, and is more generally planted for ornamental purposes than any other variety. When properly grown and sheared, it is better adapted to small yards and enclosures, than any of the evergreens of larger growth. It is also becoming generally used for hedges and boundary-lines, and is very useful for these purposes. It has a strong competitor for popular favor in the Siberian Arbor Vitæ. This latter variety is slower in its growth, and more compact in its habit than the former, and is becoming, deservedly, very popular. The list of Cedars would not be complete if our native Red Cedar, *Juniperus Virginiana*, were left out. This variety, for some cause, has not received the popular favor that it merits seem to deserve. When left to itself it becomes loose in its growth, and ragged in its appearance; yet by a judicious system of pruning or shearing it becomes more compact in growth and appearance, readily adapting itself to any form or design that the cultivator may desire, and can be made very beautiful in its appearance. I would advise its culture more generally.

There is another tree that I would not fail to mention for culture

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for ornamental purposes, and that is the Scotch or European Larch *Larix Europea*. This tree of late years has received considerable attention, more especially here at the west, and much has been said in its favor. I do not now propose to discuss its merits or demerits, but simply content myself by saying, in my opinion, no list of ornamental trees would be complete without it, in the effect it has in the great and grand picture of landscape adornment.

MULCHING FRUIT TREES.

BY A. L. HATCH, ITHACA.

Material applied to the surface of the ground around trees as a sort of coating is termed mulch. Mulching is resorted to for various purposes:

First. To retain moisture. This is one of the prime uses of all mulching, and always to be considered.

Second. To shade the ground during summer so as to prevent excessive heating by the sunshine. It is said that heating the roots of trees above 70° is injurious; a statement we fully credit. Where the sun shines directly on clean, dark-colored soil it is often heated to a much higher degree, and that to the depth of several inches, in all probability. With the mercury at 95° in the shade we found it to rise to 120° very quickly in the sunshine, a heat altogether incompatible with healthful growth of a tree in this climate, or proper retention of moisture.

Third. To retain the tilth of soil, to prevent baking and hardening of the surface. A hard surface, a compact soil, without porosity or æration, is not congenial to plant growth. That mulching prevents hardening of the surface is well known.

Fourth. To render the soil fertile and to retain fertility. This arises from the decomposition of the material used, from the resulting porosity and prevention of evaporation.

Fifth. To prevent extreme freezing of the ground, and to protect against sudden freezing and thawing. Anything to protect from extremes or sudden changes of temperature we consider beneficial, but more particularly the extreme of cold.

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Sixth. To retain frost around the roots, to prevent too early a start in the spring. Many mulch with this object in view, but our observation and experience is, that it will make no practical difference. When warm weather comes, the buds will start in spite of mulching, even though the ground be frozen below. The idea that sap flows with warm weather, during winter, in an apple tree is erroneous. Fruit trees are not like maple trees in this respect. The sap of fruit trees does not circulate until spring comes. During winter, when thawed, there is a resupplying of the moisture that has been dried out during preceding freezing, dry weather; something we deem quite essential to successful wintering of fruit trees.

Concerning the time of applying mulch, practice differs. Regard must be had to circumstances, and what effect is desired.

First. During winter and fall, after growth is over. This of course would be preparation for the next season. Its application at this time will give different effects, and like that of any other time may have a different relation to different farm work, etc.

Second. In the spring, when growth begins. Applied at this time it would have an effect not generally desirable in most fruits, viz., retaining excess of moisture and frost too long in the ground.

Third. During the growing season. Suppose the surface of the ground around an apple tree to be given clean culture during May and first part of June, allowing the sunshine to warm the soil and start the tree into vigorous growth. About the middle of June the weather becomes quite warm and drought often sets in. This we deem the most favorable of all times for applying mulch, as it will protect against the extremes of summer heat and drought, and will not have been applied so soon as to prevent the benefits of spring sunshine.

Concerning material for mulching, practice also differs.

First. Tree leaves, nature's mulching, probably are superior to any other, but these are not always attainable.

Second. Animal manure, with more or less of barnyard litter, etc. The application of animal manures to fruit trees has always been more or less a mooted question. Our observation and experience in this climate is, that it is very injurious, and sooner or later will result in the total loss of the trees to which it is applied.

Third. Earth, such as muck, loam, &c. This is often an important modifier and useful over coarse, light litter to prevent its being scattered by the winds.

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Fourth. Vegetable manure in the form of half rotten straw, fresh cut weeds, clover, etc. Doubtless the most practical and appropriate of any material.

Fifth. Wood chips, sawdust, tan bark, etc. If you want to have your trees infested with borers, etc., use old chips and you won't wait long. Our observation and experience is adverse to the use of chips on that account and because they seem to mould and mildew the soil below. Concerning tan bark we have no experience, but think none of these on decaying would give such congenial fertility as vegetable manures.

Sixth. Mineral fertilizers, such as lime, ashes, etc.; not so much as a mulching proper, however, as a sort of modifier and accompaniment of the foregoing. Lime is especially useful in fruitage and for assisting in giving health, and ripening up each summer's growth. Ashes act more like animal manures in having a stimulating effect.

When mulching is applied, care should be taken to protect against vermin, both insects and rodents, for many such may harbor in the material used. To protect against mice, remove the mulch close to the trunk of the tree and bank with clean earth a foot high.

BREEDING APPLE TREES FOR HARDINESS.

BY C. S. ABBOT, PRAIRIE DU SAC, WIS.

How can permanent and paying orchards be raised in the northwest? The would-be fruit-growers of the belt lying north of a line drawn west from Chicago are but little benefited by discussions of fruit-growing in Michigan, Ohio, or even Canada, Maine, or northern Vermont. Any region whose westerly winds sweep over water, open in winter, will, of necessity, have an atmosphere both summer and winter, so different in regard to moisture as well as heat and cold, that the experience of its denizens will be of little use here. And the coldest apple-growing region east of us, Lower Canada and northern New England for instance, have not our summer heats and droughts, violent winter extremes of dry-freezing, our hurricanes of dry southwest wind, scorching with cold in winter as with heat in summer. Mere extreme of cold is but one element in the climate

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combination we have to contend with. Every other summer, spring, or fall brings some excess or some deficiency to attack our trees, and now that our eyes are sharpened by experience in hard fortune, we find that the winter often has had nothing to do with the damage, or has only put a merciful finish to a subject the summer or fall had fatally wounded.

Then our soils differ in many localities from those of Michigan, except along the west shore of Lake Michigan in a narrow belt. The region of drift-covered country lying next is not so dissimilar, but as you enter the driftless region of western Wisconsin, northwestern Illinois and northeastern Iowa, you come into a region where the conditions of the nature, origin and composition of soils, their drainage and the very face of the country, taken in connection with the difference of climate, compel such diversity of treatment as to make the very language of the horticulture of the region sound strange to eastern ears.

I believe the nearest approach to an isoclimatic line that should traverse the lower valley of Wisconsin River, would run thence in a direction southwest by west, so as to cut Iowa diagonally, across southeastern Nebraska and northwestern Kansas. By this term I mean the collective influence of all climate conditions on vegetation, so as to produce similar average results for a term of years upon unprotected or equally protected trees or other perennials. But Missouri, Kansas, even Louisiana, have as much in common with us in regard to the effect of climate on such fruit as can be grown here, if not more than any state due east of us.

And here let me note error number one in arguing upon the probable hardiness of varieties. It is common to hear well-informed men say, "such a variety is a southern tree; it cannot be hardy here." Now how are the facts? Is the Fameuse more hardy than the Ben Davis here? Does Rawle's Janet suffer by comparison with Northern Spy? Willow Twig with Pomme Gris, or Limber Twig with Domine? The Blue Pearmain, the boast of Maine and northern Vermont, blights with us to that extent that it usually gets grubbed before it bears an apple. The truth is, that except the Russians, the trees of no section or country can be counted on as perfectly hardy here, and why should they, as except the burr oak, our native forest trees often prove too tender for many of our soils and situations.

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If zeal and resolution in an undertaking were always graduated by success, most fruit-growers west of Lake Michigan would now be more inclined to rest where they are than to attempt anything new in apple-growing; but it seems that in many instances, past experience serves to provoke to new trials. Hitherto we may be said to have been learning what we cannot do. First, it was ascertained that Baldwins, Greenings and the whole list of leading eastern sorts are of no use. Then soon after 1856, the knot of invincible fruit-experimenters at Baraboo, Wisconsin, informed us that Duchess of Oldenburg and Fameuse would do, and that English Golden Russet and Tallman Sweet were good for something; and Mr. Plumb, among other sorts, introduced the Fall Stripe and the Plumb's Cider. Later, Haas, Tetofski, and Walbridge have been introduced and promise well. And, not content with the odd and chance varieties from other climes that would live and bear fruit with us, some gentlemen have made some more systematic efforts to find varieties to suit our conditions. Mr. Peffer's Pewaukee and the Wealthy of Mr. Gideon, of Minnesota, are examples of seedlings obtained in the efforts to grow something better than we now have, and so far as tried, give good satisfaction, I suppose.

But suppose I ask, what one, two or three varieties of winter keeping apples shall I set on well-drained calcareous sand-loam or clay-loam lying upon limestone, also perfectly drained by nature, for a market orchard of two hundred, five hundred, or one thousand trees? Such situations are to be found in thousands on both sides of Wisconsin River, from Sauk Prairie to its mouth, combining as many advantages of soil, elevation, means of shelter from injurious winds, and cheapness of land as could be desired. But if I were compelled to plant the orchard next spring, I believe I should, in order to feel any reasonable hope of success, be obliged to set it with Pewaukee, of which I have seen only a single specimen apple, and no tree over three years' old, unless I varied the list by adding Wealthy, which it seems is only a late fall sort; or some of the newly-introduced Russian (said to be) winter kinds, of which, I fancy, nobody here has seen the fruit or knows much more than that they are peculiar in appearance, like Duchess and Tetofski, and that we hope they will prove as hardy, as good bearers, at least as good in quality, and good winter apples to boot.

The fact is, well as an orchard of strictly winter fruit that would

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comply with the above specification in hardiness and bearing quality and be as good in quality of fruit (which would be only fair), would pay a man of any experience and energy, I don't believe a man can be found who would dare to set that number of trees of any of the tested varieties, not even of Walbridge, Willow Twig or Ben Davis. Fameuse and Cider are too poor keepers, and too soft to ship. They belong to the list of family orchard trees, and the first is deficient in cooking quality. Ben Davis is very poor for any purpose. Willow Twig is a little better and tolerably hardy. Walbridge, trimmed and shaped rightly while young, and set on warm, rich soil, and then well cultivated, will, when it gets to bearing, do better than any of these, but on such land as I have named, Northern Spy might do all that, too. This is about the round you will be very likely to go when you begin to discuss the market orchard question in this latitude and longitude, and the result always seems to be that you turn to the Russian section for something to tie to.

Cross-breeding, which is not in high favor with professional breeders of animals, is the method by which the gardener and fruit-grower attain some of their chief successes. This arises from the difference in the conditions. You produce a splendid animal by a lucky cross, but again you get a "scallawag" from the same method. Then your fine grade Durham or Berkshire cannot be relied on to breed one like himself. But if we could multiply such animals by extension, as we propagate apples, potatoes or roses, so that we could reproduce an unusually fine individual indefinitely, then the most violent cross would often, or perhaps usually be the one to try, for such cross now and then will result in an offspring of rare merit, combining more good qualities than often are found in any pure-bred individual.

But, on the other hand, in growing seedlings of a plant like the apple, which requires years to come into fruitage, and still more time to fairly display all the qualities which affect its value for general cultivation, such as hardiness, free bearing, adaptability to different locations, etc., much time may be spent, many trees may be grown and fruited without attaining any marked success. Consequently, where the choice varieties already in cultivation succeed reasonably well, there seems to be little use in growing seedlings for the chance of getting one in a thousand that ranks "good," or

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one in a million that will prove "best." Nor, if the cultivator is wise in his generation, will be desire to encumber his ground with seedling trees bearing fruit only fair in quality, when we can have them producing Greenings, Spitzenbergs and Newtown Pippins. But in the northwest, the case is different. We are cut off by the climate from growing most of the fine apples, at least profitably. We have a class of hardy Russian trees, bearing summer fruits of only fair quality, a few fall sorts that do pretty well, and some winter varieties that will produce, on good ground, a great many apples, but so ordinary in quality that when you get a winter keeping seedling, so far as my observation goes, it will, in most cases, be of better quality than those grafted sorts which keep equally well and are tolerably hardy with us.

Now is it not best to try, by the best methods which we can devise, to grow seedlings, especially winter keepers, better adapted to our wants and conditions? Let me premise that as a certain (or variable) proportion of seedlings are unhealthy or deficient in constitutional vigor requisite to make sound trees, either as stocks for budding, or grafting, or as seedlings, I will, when I speak of "tested seedlings," mean such as having been set in rows on unsheltered ground, and cultivated to make a fair but not excessive growth, shall, at four or five years from the seed, be sound and clear to the heart, with well ripened tips and bright colored, healthy roots.

I trust these suggestions will provoke discussion among those who have observed facts bearing on the subject of the queries proposed.

1. Can the apple be acclimated in greater or less degree, by repeatedly growing from seed, selecting each time as parent trees, those which have proved hardiest in the given climate? I say "the apple" to narrow the question to our present purpose. We see animals change their habits on being removed to a different climate. Thus a variety of corn carried to a warm climate becomes larger. If the warm season is longer it also becomes later in ripening, and *vice versa*. But Dr. Andrews, a few years ago, advanced the proposition, "You cannot acclimate a species." If he had said, you cannot acclimate an *individual*, however many times you reproduce it by extension (budding, grafting, cutting, etc.), I would assent, but my question assails his position as to the species.

2. Do not apple seeds brought from cold and otherwise trying climates produce a greater proportion of hardy trees than those

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from milder climates, when planted in the upper Mississippi region? As for instance, seeds from Lower Canada, Minnesota, northern New Hampshire, Vermont and New York? This is, in essence, only a repetition of the preceding question, for if there is no acclimation of the species, there can be no difference in point of hardiness between germs grown in those hyperborean regions, and those produced in Connecticut, southern New York or Ohio. Indeed I would wish to include in the list of "cold and otherwise trying climates," besides Russia, Norway, Wisconsin, northern Iowa, Nebraska and Minnesota.

3. Do not seeds grown on seedling trees produce a greater average of vigorous and healthy trees than those from grafted or budded trees? The idea that propagation by extension of the individual impairs the constitution of the plant, led to Mr. Goodrich's experiments in growing potatoes from the wild seed from the Andes to obtain healthier varieties, and it is admitted that the varieties so obtained withstand the rot better than the old sorts and their seedlings. I believe also that some distinguished horticulturists maintain the same principle with regard to fruit trees.

4. Hardiness being a complex term, as it is here applied to fruit trees, to a certain extent signifying merely vigor, sound constitution, and power to resist unfavorable influences, then the last query being granted, would not breeding to hardiness require us to use seedling trees to produce seed, relying on choice grafted varieties to cross-fertilize to improve the quality, according to the adage of breeders of animals, "the sire for quality, the dam for constitution?"

But enough for once. I hope others will take up these matters. For one permit me to call on Mr. Peffer, of Pewaukee, Wis.

In response to this call, Mr. Peffer spoke as follows:

In answer to the first question, Can the apple be acclimated, in a greater or less degree, by repeated propagations from seed, selecting each time as parent trees those which have proved hardiest in the given climate, etc.? I would say that a tree, hardy at the north, which bears large fruit, of a good quality, juicy and fine flavor, would probably be hardy in a more southern situation, but the fruit would ripen sooner, be smaller, dryer and often insipid in flavor. Take for instance the Duchess of Oldenburg, or any of our Russian varieties, the farther north the fruit is grown, the larger and better

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are the specimens usually exhibited at our fairs. Take the Rawle's Janet, Winesap, Ben Davis, and other southern varieties, the farther north they are raised, the smaller and later the apples, although the trees may stand the climate.

As to seedlings, see the Transactions for 1872, pages 53–58.

To the second question, Do not seeds of apples brought from colder or otherwise more severe or trying climate produce a greater proportion of hardy trees than those from a milder climate? I answer, Yes. But if a winter-variety, with long-keeping and other good qualities, is desired, it will be necessary to resort to artificial fertilization, using for the male those sorts that possess the desired qualities in the greatest degree, and for the female, those that are the hardiest and strongest growers. In the article above referred to, in the Transactions for 1872, this subject is treated of at length.

Third question, Do not seeds from seedling trees produce a greater average of vigorous and healthy trees than those from grafted fruit? Answer: No. There are many more seeds in seedling, than in grafted fruit; but this is occasioned by the method of propagating, year after year, by grafting, and by the stimulation of an excessive growth of the trees in the nursery, which causes the germs and pistils to develop so rapidly that they do not readily become impregnated, and hence the apple has but few seeds, sometimes not more than one or two.

NECESSITY FOR EXTENDED CULTIVATION OF SMALL FRUITS IN THE NORTHWEST.

BY N. F. LUND, MADISON.

Fruit long since ceased to be looked upon as a mere luxury for the few and fortunate, and has come to be considered an essential article of healthful food. It is hardly necessary to state that Wisconsin, and the entire northwest need more of fruit as food. But this want can never be fully and properly supplied until we produce that supply at home and cheaply, Much of this vast territory west of the lakes has been too recently settled to produce the needed supply, but this alone cannot be urged on the part of our state.

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Wisconsin became a state in 1848, since which date we have had twenty-six seasons of growth and harvest. When we purchase and plant the apple, we are told that we may expect fruit in from four to twelve years. More than twice twelve years have passed since we became a state; large numbers of trees and orchards have been planted, and yet the supply is inadequate for the whole people. Lack of time then is not the cause. It lies deeper and must be found in other directions.

By the introduction of the "Iron Clads" it was hoped the remedy had been found, but in the fierce winter of 1872-73 the *most iron* of the "Iron Clads" went down with the rest before the polar waves of storm and cold. May not like results be feared from the intense cold of the present winter? The records of the thermometer are interesting and should be instructive. On the 9th of January they were as follows: In Dakota, from 28 to 34 below zero; Nebraska, from 21 to 28; Iowa, from 20 to 30, and wind 60 miles an hour at Sioux City; Minnesota, from 30 to 35; Wisconsin, from 28 to 40; Illinois, from 19 to 29; Indiana, from 9 to 28; Ohio, from 10 to 16, and Michigan, 6 to 10. While the mean temperature at the State University in this city, for the first twenty seven days of January, varied but a fraction from four degrees above zero. If I recollect correctly the record of cold for the winter of 1872-73 was similar to the above.

The last two states in the above list are largely fruit-growing, and the record shows them outside the limits of the "Polar wave;" or, that their surroundings so modify the intense cold, as to render it comparatively harmless, while Wisconsin and the states west of the lakes lie directly in its track. Among all the causes for our failure, thus far, to produce a supply of fruit grown from trees, do we not here find the chief, and when is added that other cause, our dry summers, have we not all, that are not common to the whole country?

The apple is the leading fruit, and should be in such abundance as to be freely used by every family. That apples from one to two dollars per bushel can be found in constant supply upon the poor man's table is simply impossible. When will the poor of our state use berries as food, at fifteen to thirty cents for the few that make up the commercial quart? From my own knowledge I state that these or higher prices have been the rule in portions of Wis-

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consin for nearly twenty years. At such prices, in our towns and cities, the laborer would sometimes get a bushel of apples for the price of his day's work; but he will buy them as a luxury he can seldom afford. There may be localities favorable to the growth of the apple, where, for a short season, they are sold at low prices, but these are exceptions. There are portions of the state where the wild-growing fruits may be freely gathered, but for the many, these are far removed from their homes.

Let us picture as placed before us to-day, the fruits of all kinds, wild and cultivated, that were gathered and used in this state during the past season, and beside it, place that brought from other states to supply, in part, the deficiency. Over against these combined, put into the picture an amount, that, at prices within the reach of all, would have supplied the wants and demands of the entire population, and we should quickly see, that for food our supply of fruit from all sources was most limited.

At this point, looking back over the experience of these twenty-six years, can we safely conclude that the varieties of fruit-bearing trees have been found which can be planted and relied on for the supply of the future? Is it not rather a protracted experiment, the success or failure of which lies still in the future? I have never doubted that our state would ultimately succeed in raising its supply of the leading fruits. And further, I believe that the road to success lies mainly in the direction of the propagation of trees from the seed, and that the needed varieties born of our soil and raised in our climate will be found. But when that day is reached, I believe the fruit-bearing tree will be as hardy as the oak, and as able to withstand the intense cold and fierce winds of winter, and the heat and drought of summer. Nor can I doubt that success must be attained by the enduring courage and bravery that can look on while the work of years is being cut down in the winter's storms with no power to stay the destruction, and then quietly and manfully discuss the causes and continue the business.

Again, looking back over the experience of the past, can we see any hope for a supply of home-grown fruit in the immediate future? To this I unhesitatingly reply, that in the general cultivation of the small fruits we may largely find this supply. And the reason for success here is easily shown, for while the tree must bear the winter's blast with at most but partial protection, the shrub,

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the bush and the vine can be safely covered and placed beyond the reach of harm. Our only present safety and hope is in the winter protection of fruit-bearing plants. And right here, in the encouragement of the cultivation of small fruits we may find a great work to be done for the people. If we could the coming spring visit every home in Wisconsin, around how many, think you, should we find the evidence that the family would gather in their season a beautiful supply of small fruits? Judging from my own observation, such homes would number a very small minority. Around the majority I fear we should find no evidence that a taste of fruit could be hoped for at home during the entire year, unless found in field or forest. We cannot compel the people to cultivate fruit, but we can encourage them to begin its cultivation where they have not, and to improve upon what is already begun.

Our list of small fruit as compared with portions of the country, is limited in species and varieties, with one exception; but those we have, are sufficient under proper culture to give sure and bountiful returns.

No one need look for a better strawberry than he will find here; and if he desires he may have them in good variety.

Raspberries can be raised with little care and expense, and in sufficient variety through their entire season, even including the "perpetual bearing."

Currants, when fully ripened, are among the most healthful of fruits. I venture to name them here, although they have no place in our lists of fruits; why thus omitted I am not informed. If it be because everybody is supposed to grow them, it is a mistake, and of those who do, few grow them properly. The fruit of the currant as usually grown, with the roots bound down by grass or choked with weeds, is no more to be compared with the fruit ripened under proper culture, than the wild crab to the Red Astrachan apple. I have often seen the White and Red Dutch Currant preferred to berries placed beside them, when both were equally ripened.

The neglected Gooseberry, another not deemed worthy to be named in our lists, may be grown in some variety with a little extra care; and it should be classed among the best of small fruits for winter use, when rightly prepared for the table.

The Raspberry and Currant I would plant if possible along the side of fences. The Gooseberry, in an open space in the garden

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where it would not be shaded, as it is more liable to mildew if planted where the sun and rain cannot reach it unobstructed. When well started the three last named require but little cultivation with the hoe, if they are kept well and constantly mulched. This causes the roots to grow near the surface, where they find a constant supply of moisture, which is retained during the entire summer by the mulch. The mulch should never be removed, but added to as it settles from decay. Gooseberries require more mulch than Raspberries and Currants. It should be kept well piled up around the bush, and will be found an additional preventive of mildew, which is the bane of the Gooseberry. For winter protection I simply add leaves, vines, corn-stalks; anything from the garden. Material for mulch is always at hand. For this purpose almost everything may be used that is to be thrown away. We cannot turn over a stone or brick during the severest drought without finding moisture. This should teach us that they are good materials for mulch. The old canes of Raspberries, and the oldest wood of Currants and Gooseberries, with all superfluous shoots that have not been removed during the growing season, should be annually cut out.

The plan suggested at our meeting one year ago of leaving the old canes of the Raspberry until late in the season for the purpose of shade, I tried the past year. As a result, the new canes were very much smaller than usual, while most of the old canes were alive early in October, many still having branches with fresh leaves. This prolonged growth of the old canes I now think was so much wasted nutrition, that had better have gone to the full development of the new canes. The new is not the better plan, but that of cutting out the old canes as early as practicable after the fruit is gathered, is preferable; then trust to mulching for shade.

The Blackberry is a delicious and healthful fruit; but thus far it has been a universal failure in the open portions of our state. Must we abandon it wholly without hope of success? In the northern portions of this state it is found wild in great abundance, and although growing in or near the forests, yet still growing in this climate of ours. Is it not possible here to find the point at which we can date success in its culture? Will not some Lawton yet give us from the northern woods this fruit we so much need? The experiment would be well worth making, and if necessary repeating.

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Looking back at the discouragements and failures in our attempts to produce a supply of fruit from trees, and to our limited list of small fruits, it is a relief to name one that does succeed in our state. This is the Grape. Here we have a fruit in great variety, that is easily grown and all tastes may be satisfied. As a rule the grape that will succeed anywhere in our latitude, or in the states touching the southern shores of the lakes, will succeed in some portions of our state. But the grape must have winter protection, or all our work is lost. Compensation is found in our climate during the growing season, in the indemnity it gives from many of the scourges that affect the vine and its fruit in those sections where winter protection is not required. From mildew, blight and rot, and many insect pests, that are a constant discouragement in those sections, we are comparatively free. We can and do raise grapes, that, in quantity, size of cluster and berry, perfection in ripening and flavor, will compare favorably, if they do not excel those of any section growing the same varieties. And a great point is, that we can do this every year. We may have the grape in season nearly as long as the apple. Carefully selected varieties will keep until spring with as little care as other fruit. The fruit may be dried; and by choosing varieties adapted to this, and by a proper curing process, I have no doubt we shall yet produce a very fair raisin for home use. The interest manifested within the past few years in growing the grape is most encouraging, and shows how earnestly the people desire to raise their own fruit.

In what I have said, let me not be misunderstood. By no word of mine would I add to the existing discouragements in growing fruit from trees. All efforts tending to this end should receive every encouragement. But I plead that the chasm between present want and the distant supply may be bridged by the cultivation of small fruits. If the population of the northwest shall ever come to freely use fruit as an article of food, it must be grown around the homes of the people.

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EVERGREEN SEEDLINGS.

BY H. M. THOMPSON, ST. FRANCIS.

A few days since, being in conversation with a gentleman who has devoted a lifetime to horticultural pursuits, and whose opinions in relation to the propagation and qualities of fruit trees adapted to the different soils and climatic conditions prevailing in the northwest are entitled to great consideration, he expressed doubts in regard to the safety of transplanting nursery-grown seedlings, because they are propagated in the shade. It is to be presumed that if so prominent a professional horticulturist entertains a doubt upon a subject of so much importance to planters of ornamental and timber tree seedlings, that similar doubts must prevail in the minds of a portion of the great tree-planting community in the west, and more especially prevailing in the minds of those planters, who have had but little, if any experience in transplanting nursery-grown evergreen-tree seedlings.

It is quite probable that whatever doubts do prevail in the minds of tree-planters as to the results in transplanting evergreen seedlings are based upon the fact, that many millions of forest-grown evergreen tree seedlings have been distributed among tree-planters in the western states and territories, and it is a generally conceded fact, that the result has been a large loss of plants, and a very unsatisfactory growth of those that survived, and the current belief being, that the principal, if not the sole cause of the loss of plants, is ascribed to the fact, that those seedlings originated, and were grown in the shade, and that on removal from the forest shade, and transplanting in open grounds, they are partially, if not wholly unable to survive when subjected to so sudden a transition from shade to sunlight.

The sudden transition from shade to open ground may be one of the causes, but is not the sole cause that has contributed to the loss of forest-grown seedlings. Some of the other causes which have combined to produce the result may be attributed to the far-

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ther fact that these seedlings have but few fibrous roots, and that in taking them up they are pulled by hand instead of being dug with a spade, hence they are divested of nearly all the fibrous roots with which forest-grown seedlings are naturally furnished. This treatment, in combination with exposure to air, sunlight, imperfect packing and consequent injury to the foliage for want of air while in transit, tends to impair, if not destroy their vitality; hence, with the most careful treatment in the after-handling, planting and shading, the percentage of loss is so very large as to discourage the planter from making any further attempts in the same direction; and the result has the further effect of impressing upon the minds of tree-planters the impression that because forest-grown seedlings are grown in the shade, and that as they cannot be safely transplanted to open or partially screened grounds, hence the same results may be looked for in transplanting nursery-grown seedlings, from the fact that they are also propagated in the shade; not taking into consideration the combination of causes that tended to produce disastrous results, and not considering the further fact that neither forest or nursery-grown seedlings can be successfully propagated in this country from seed without partial shade, for if the soil contains the necessary constituents, and is in proper condition, it is a well-known, established fact that shade is one of the most essential requisites necessary to enable the soil to retain an equable volume of moisture while the seed is undergoing the process of germination, and for the protection of the young plantlet while in the herbaceous stage of growth, and for the further prevention of undue evaporation of moisture from the upper stratum of soil while the downward extension of root-growth is confined near the surface of the soil, so as to render the plants very susceptible to injury when the requisite moisture is lacking to supply the quantity required for digestion, and to replace the loss constantly taking place by exhalation. Hence, shade being one of the essential requisites which cannot be dispensed with in the propagation of evergreen seedlings during the first one or two years of plant-life, we are compelled to accept the situation, and to the use of seedlings thus grown, and which can be originated in no other manner.

In order to ascertain what would be the result of the exposure of young, nursery-grown evergreen seedlings to the full force of sunlight, I have made the following experiments. In the spring of 1874

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the screen was moved from several beds of one-year old Norway Spruce seedlings, estimated at one million plants. The screen was also removed from several beds of one-year old Scotch Pine seedlings, estimated at one million five hundred thousand plants, and from two beds of two-year old Austrian Pine seedlings, estimated at fifty thousand plants. The screen was also removed from two beds of Arbor Vitæ seedlings, two-year old, estimated at fifty thousand plants. During the month of May and a portion of the month of June, the amount of moisture contained in the atmosphere and soil was in sufficient quantity to encourage a fine growth, and to favor the development of buds and to ripen the wood.

During my absence from home, in the month of July, for five successive days, the daily, maximum range of the thermometer, in the shade, at a point eighty rods distant and at the same altitude as the seedling beds, was reported at from 98 to 103 degrees, and I regret to state that no observation was taken of the degree of heat to which the plants were subjected, which must have been very great, owing to the situation; the seedling beds being located on a level plat of ground and bounded by an elevation of from five to twelve feet in height, situated four rods distant and south from the beds, with a grove of timber on the southwest, and with screens on the remaining sides of the beds, all of which tended to retard the circulation of air, favor the accumulation of heat, and encourage the evaporation and exhalation of moisture from the soil and plants to an unusual degree, and hence was exceedingly detrimental to the existence of plant life.

In autumn, when the seedlings were ready to go into winter quarters, the loss of Norway Spruce was estimated at fifteen per cent., Arbor Vitæ, fifteen per cent., Scotch Pine, less than one-half of one per cent., Austrian Pine, no loss. The greater percentage of loss of the Norway Spruce and Arbor Vitæ is attributed to the fact that the lateral roots of those species of seedlings grow much nearer the surface of the soil than the lateral roots of the Scotch and Austrian Pines, hence they are more liable to be injured by excessive heat, and consequent evaporation of moisture from the soil, and exhalation of moisture from the plants.

In the month of August of the same year, I transplanted ten thousand Scotch Pines taken from the seedling beds before mentioned, with a loss of plants, estimated at the beginning of winter to be less than

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one-half of one per cent. In the months of June and July, 1873, I transplanted about thirty thousand Norway Spruce, two to six inches in heighth, resulting in no loss of plants; these transplantings being made at an unusual season of the year, advantage was taken of a cool, damp atmosphere, and a wet soil, occasioned by rain fall; the June and July transplanted seedlings being shaded by lath screens; the August planting of Scotch Pine having no protection until nearly a month after the transplanting was completed.

For a number of years my practice has been, to bed out all seedlings less than six inches in height, and protect them the first season with a cheap constructed screen; larger sized seedlings either bedded out, or planted in nursery row and mulched; the result to this date, in loss of plants from drought being too trifling to mention.

From the result of the foregoing experiments, tree-planters who have had any experience in transplanting forest-grown evergreen seedlings may deduce the fact, that nursery-grown seedlings have an ample supply of roots, and if properly handled, planted and cared for, will survive and produce satisfactory results.

PROTECTION OF TREES FROM RABBITS.

BY J. T. HAWES, MADISON, WIS.

During a residence of nearly thirty-two years in this (Dane) county, I have noticed all along, the wholesale destruction of young orchards by rabbits, thereby causing much discouragement against setting out fruit trees among those who are rather careless in such matters. I have been casting about in my mind for something both cheap and effectual for a protection, and have hit on a plan that I like, so far. In the spring of 1873 I set an orchard of 300 trees, and as they were inclosed on two sides with a heavy growth of second growth of oak and poplar, I knew the rabbits would be on hand with the first deep fall of snow, for a share of the tender bark, and as they take their share generally near the ground, thereby much interfering with the growth of the tree, I thought it best to prepare for them.

The first winter I was induced to rely on shocks of corn all

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through the orchard for protection, but that was not sufficient, and I lost a number of trees. Last fall I bought sixty boot and shoe boxes, knocked them to pieces, saved the nails, split the boards in strips of about three inches wide (as near as I could), made them into square boxes, nailing three corners, leaving the fourth corner without nailing. They are put on by springing the unnailed corner apart sufficiently to pass it by the trunk of the tree and letting it come together again, thereby forming a perfect protection against rabbits and mice, and the sleety storms of winter. They can be left on through the summer, as a shield against the hot sun. I think I shall leave them on summer and winter, until the trees are large enough to take care of themselves.

As these boxes can be bought for about fifteen cents by the quantity, and will make, on an average, five tree-boxes, there being nails enough in them for the same, the cost is but trifling. The length of the boxes varies from two and a half to four feet, which is about the variation in the length of trees. The ends of the boxes can be made into short boxes and put two on a tree, thereby using all the lumber. The boxes are easily removed and replaced at any time.

INSECTS IN FLOWER AND PLANT CULTURE.

BY MRS. I. H. WILLIAMS, MADISON.

In treating this subject I do not propose to go into an elaborate article on the science of Entomology but merely, in a practical way, refer to those insects most generally known, giving their cause and effect, and a few simple remedies for their destruction.

All plant life is more or less liable to the attack of insects, and only by constant care and watchfulness can we be free from them. There are some of the knowing ones who say if a plant is in vigorous growth the presence of some insects, such as the scale bug on the ivy, does not impair its condition; but I contend no insect should be allowed foothold in green-house or window-garden, for acting as they do, the part of a leech, drawing from the plant its life-giving powers, how can it be of benefit? If not a benefit it must be an injury.

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The aphis or green fly is so well know to all plant-growers that it scarcely needs a description, and is the easiest to dispose of in the green house by smoking with dampened tobacco stems, then syringing. This knocks the stifled bugs down into the earth where their wings become covered with it, and they being unable to remove it soon die. Plants in the house may be washed with warm suds and rinsed off with clear, tepid water, and then remove the surface of the soil where they will fall. Garden plants may be syringed with tobacco tea, made by pouring boiling-hot water on tobacco stems. A decoction made from quassia chips is also recommended as a wash. Encourage the lady-bug and the toad in the garden. They are untiring, ever vigilant and valuable assistants in destroying these insect foes.

The red spider is the most insidious and annoying of all insects, its appearance is so sudden and difficult, on account of its minuteness, to be noticed until much mischief has been done. They seem brought into life by a dry, hot temperature, and, when they have taken possession, are a difficult claimant to remove. A cool, moist, temperature is death to them, and this can be obtained by repeated dippings and showerings. The instinct of self-preservation seems strong in all the insect tribe, taking refuge as most of them do, on the under side of the leaves. Oftentimes the red spider cannot be seen without the aid of a glass, but their presence soon speaks for itself by the turning brown and curling up of the leaves. A wash composed of two ounces of soft-soap to a gallon of quite hot water, into this dip the infested plants, let them drip and return to the wash again, then wash off with clear water.

The mealy bug, the most repulsive looking of all insects. When viewed through a microscope it resembles a tiny poodle dog, pinkish white in color, oval in form, unpleasant to kill, and a very troublesome intruder. It is found on hard-wooded plants such as the Fuchsia, Ivy, Geranium, Hoya Carnosa, or Wax plant, and even taking possession of the most prickly of Cactus. Smoking, freezing, drowning harms them not, the only remedy is a strong suds of whale-oil soap applied with a tooth-brush; it is found in the axil of the leaves, where it makes its nest, and to the inexperienced eye, looks like a mere speck of down, but at that speck take alarm and be on your guard, for they spread rapidly. There is another remedy which is only superior for the reason that you are not obliged to

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rewash the plant in clear water to remove the soap, one part alcohol, three parts water, applied with a small paint brush.

The scale bug is a small, oval, brown-backed insect; with thick shell clinging so closely to the stalk or leaf that it seems to be part of the plant. They must cling by suction, for I have never been able to discover any visible means of locomotion, or ever seen them move, as one may other insects.

They must be rubbed off with the hand, then wash with strong suds of whale oil soap. They are found on Abutilons, Ivy's, Orange, Lemon, and sometimes on Roses. Plants thus affected should, in the summer, be planted in the ground and let the busy little ants do the work of cleansing for you, and right well will they do it.

The thrip is a small, white fly, usually found on the under side of the leaves, the least touch of the plant will cause them to rise and fly. They are generally found where plants are grown too much crowded, or in badly ventilated places. Tobacco smoke will dislodge them, or where there are but few plants, sprinkle and wash often. They will be found on Bouvardias, Salvias, Lantanas and Roses. Plants so effected will have on the under side of the leaf a tiny white speck, this is the egg or germ which produces the insect, so be sure and remove it.

The Rose slug is a small light-green worm which makes its appearance about the first of June, to greet our lovely, June Roses. They, like the rest, shelter themselves under the leaves; they come like a vast army in battle array, ready to defy us. They make sad havoc, not only with the foliage, but even destroy the buds, so that some years it seems impossible to preserve this queen of flowers from their ravages, and many in despair reluctantly give up the culture of the Rose. I have tried the following, and know it is valuable, destroying the slugs without injury to the plants; one-fourth pound of white hellibore and one-half pint of soft soap to a pailful of water. Early in the morning use the wash with a garden syringe, as with that, one can reach the under side of the leaf. In August, if any were allowed to escape in June, they will return again; watch closely and at once apply the remedy.

To an amateur just undertaking the care of a few plants, this array of obstacles, may seem quite formidable. Be not discouraged; to

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be successful one must meet with opposition; if plants and flowers could be obtained without care and work, their value and beauty would be greatly lessened, for that which we readily obtain, we seldom enjoy, or prize. With precaution in good ventilation, perfect cleanliness and care, one may never be visited with the least of these little insects.

EARLY WILD FLOWERS OF WISCONSIN.

BY MRS. H. M. LEWIS, MADISON.

Too few of those who have ample opportunity and leisure know, even by sight, much less by name, our common wild flowers. A lady friend said to me not long ago, "How glad I should be to know an Anemone when I see it." To such I hope to give the name and a slight description of our principal wild flowers, blossoming in April and May, and many, like the Painted-cup, Phlox and Roses, blooming through the entire summer.

During the cold and dreary month of March we seldom look among the dry leaves for the blossoms, but in April, if we stroll through the woods, and over the warm hillsides, we will find a few bright blossoms to remind us that the lovely, balmy spring, with its sunshine, opening buds, and lovely blossoms will surely visit us again to gladden our hearts; and to assure us that the despotic reign of winter is over.

Let us put on our heavy walking-shoes and make our first visit to the water's edge, or marshy ground. Here we find the graceful catkins of the willows, that the children love to call "pussy's." We will go over the hillside that looks eastward to find spreading clusters of the beautiful Anemone, *Pulsatilla*, wind flower; a flower that is supposed to open only when the wind blows. The hairy flower stem is about three inches high, and bears several fine gray leaves, and is crowned with a single, large, bell-shaped, white flower, the external, of a reddish purple; the seed is enclosed in a gray fringe, which is highly prized to mix with grasses for winter bouquets.

If we happen to live in a favored vicinity, the Trailing Arbu-

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tus, *Epigœa*, will delight us with its flowers of rare beauty, trailing upon the earth, and retaining its bright, evergreen leaves through the winter; the flower is of a light rose color and white, exhaling a most spicy fragrance; its favorite home is among the pines.

Next comes the lovely Liverwort, *Hepatica*. We must keep our eyes wide open for fear of treading them under foot, for they send up clusters of pink, purple, and white blossoms before the leaf appears; they are often found in the shelter of old trees and stumps; the tender brown leaves just appearing will change to a dark green, that will remain bright until the succeeding spring. To me no more lovely flower ever appears than this sweet child of the wildwood. This plant transplanted to a rockery has been the herald to announce the approach of spring for several years past. I feel an irresistible desire to talk to it, as I see its bright eye peering out among the ice and snow.

We have two varieties of the *Erythronium;* the *Americanum*, Yellow Adders-Tongue, has a long, smooth, light green leaf, spotted and glossy, bearing a yellow lily in the centre of its two leaves; the *Albidum* White Dog's-tooth Violet, has few, if any, spots on the leaf; plant more slender, and white flower.

Now as we are in the woods, let us look around us, for neighbors are sure to be found on every side. This beautiful, pure white flower, with bud like wax, is the Blood Root, *Sanguinaria*, but in picking or transplanting, we must handle it with care, as the plant is filled with a fluid resembling blood; this fluid is much used by the Indians for painting baskets etc. It is a plant highly prized in the eastern green-houses for forcing in winter.

Another familiar friend, sure to be near, is the Wood Anemone of poetic fame; it is a delicate little flower, sending up a stem, bearing three leaves, crowned with a single, white blossom, sometimes tinged with pink; they are apt to grow in patches.

The *Dicentra*, or, as it is universally called, Dutchman's Breeches, on account of the supposed resemblance of the coralla to that article of dress, is a perennial, with finely divided leaves of a pale and delicate green, from the midst of which rises a scape bearing a one-sided raceme of white or creamy colored, pendulous flowers; it transplants easily, and should be found universally in our gardens.

The *Claytonia,* Spring Beauty, is sure to be found among its friends;

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it has a flower of pink, or flesh color, richly veined with rose, bearing its pretty clusters of flowers upon the leaf-stem.

The Violet—

"She comes, the first, the fairest thing
That Heaven upon the earth doth fling
E'er winter's star has set!
She dwells beneath the leafy screen,
And gives, as angels give, unseen.
So love the Violet."

The old, familiar Dandelion is too well known to need an introduction to any one; it is at home in town or country, alike; never failing to show its bright face when spring appears. A friend writing from the far west says, "Please send me seeds of the Dandelion and a few roots of the Early Blue Violet; we have beautiful wild flowers, but none of these, and I shall never feel quite at home until I see them around me."

Another common and well known flower, a favorite with the little ones, as it never fails to tell the story if the children love butter, is the Butter Cup or *Ranunculus*, a Latin name for little frog.

The Yellow Primrose (cowslip) is found growing in low lands. I see no reason why it should not transplant well, and treated like the Calla Lily, be a valuable addition for forcing in winter for the parlor, or green-house, when the demand for yellow flowers is great.

Of the Wake-Robin, or *Trillium* (from *trilix*, triple, as it has all its parts in threes, three petals, three leaves of the calyx, and three green leaves on the flower-stem), we have two varieties. The *Trillium grandiflorum* is the handsomest of the species; growing about a foot high, the petals are about two inches long and pure white, changing as the flower grows old to a rosy blush; this is the variety commonly found. The *Trillium pictum* is a variety not common; flowers of a pinkish white, petals and leaves slightly curled; it is exclusively a North American plant.

We have an early Daisy, *Bellis,* which I am not able to name, that grows freely in some localities.

We also have an early variety of Phlox that I have never seen at the east; it more nearly approaches blue than any I have ever seen raised from highly advertised seed; the clusters are large and fine; it is easily transplanted and should find a home in every flower-garden; we have other varieties coming later.

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The *Aquilegia*, Honey Suckle, as the children call them from having a drop of honey secreted in the inverted spur of the flower, is an interesting and pretty flower, of scarlet exterior, with yellow lining. It grows freely among rocks.

The Shooting Star, *Dodecatheon,* signifying the twelve gods or divinities, is a highly ornamental plant, throwing its flower-stem up a foot or more, with large umbel-like clusters of pure white, pink, and lavender-colored flowers, with petals thrown back from the center.

Polygonatum, Solomon's Seal, is a perennial, commonly found in woods and shady banks, with white flowers in the axils of the leaves. Geralde, in speaking of the virtues of this plant, in about 1590, says: "The root of Solomon's Seal, stamped while it is fresh and greene, and applied, taketh away, in one night, or two at the most, any bruise, blacke, or blue spots, gotten by fals or woman's wilfulnese in stumbling upon their hasty husband's fists or such like."

The *Cynoglossum*, Hound's Tongue, is a coarse but showy biennial, of a bright orange color, growing in large clusters; leaves covered with short, soft hair; the plant has an herby smell.

The *Castilleia*, Painted Cup, is a bright and beautiful flower that seems to adapt itself to almost any situation as it grows wild, but cannot be transplanted easily, as it is a parasite, living upon the roots of its neighbors. Spreading masses of it are seen for miles in every direction upon our prairies, making a most gorgeous carpet. The common color is bright red, but occasionally we see them in yellow and white.

The Lupines, Quaker Bonnets of our childhood, are found frequently in large masses from a yard to several rods in circumference; we have them in pure white, lovely blue, and purplish pink; they are very showy and attractive.

The Mocasson Flower, *Cypripedium*, signifying sock or buskin, is a curious and interesting plant; the yellow and white varieties blossoming in May, the large pink variety coming later.

The *Geranium maculatum*, Cranesbill, is a showy, well known flower, growing freely in fence corners and edges of woods; its color is pink and purple.

The *Hydrophyllum*, Water Leaf, has a large green leaf, blotched with white; the flowers are small, borne in clusters of white or flesh color, with stamens protruding; a flower of no great beauty.

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The Arum, commonly known as Jack in the Pulpit. The poet says:

"Fair is the canopy
Over him seen,
Painted by nature's hand
Black, brown and green.
Green is the pulpit,
Green are his bands,
In the queer little pulpit
The little priest stands."

Arum signifies sign or mark. It is a curious and well-known plant, found in damp woods, of dark-green and brown color, with deep, brown spots. It is said to have been at the "foot of the cross and stained by the dropping blood of Jesus."

The delicate Star-grasses must not be forgotten because they are small, for the children, if not the older ones, are sure to be delighted with them; we have them in yellow, white and blue.

Flower de Luce, *Iris,* from the Greek, the rainbow deified, are found on low lands; the usual varieties seen are the *Versicolor*, Large Blue-Flag, and *Virginicá,* Slender Blue-Flag.

The Mandrake is a well-known plant; flowering stems bearing two one-sided, large leaves; white, nodding flower from the fork of the leaf; flowerless stems, in shape like an umbrella, with large single leaf.

The western Wall-Flower, *Erysimum,* signifiying blisters, is a fragrant flower, of bright-orange color, the same as the plant highly advertised in eastern catalogues.

The *Tradescantia Virginica,* Spiderwort, has intensely blue flowers, produced every morning from May to September. The foliage is long and grass-like; a plant highly prized for the garden at the east.

We have one beautiful, large variety of Wood-Sorrel, *Oxalis*, that is a deep rose-color; it is not common; the colors most commonly seen are yellow, or dull-pink, with bright, trefoil leaves, containing an agreeable acid, which fold as night approaches. The *Oxalis* is probably the true Shamrock of Ireland, that St. Patrick is supposed to have used, although the Creeping Clover is now generally accepted.

The *Fragaria Indica,* Strawberry, differs from the true straw-

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berry in having leafy runners, bearing bright yellow flowers; fruit insipid; fine for baskets, rockerys, &c.

The Rose, the queen of flowers, the perfection of floral beauty, the flower of love, poetry and song; we can conceive of nothing more beautiful to the eye or more agreeable to the sense of smell than the half-blown rose. In Solomon's wisdom we find, "Let us crown ourselves with rose-buds before they be withered."

> "And first of all the Rose, because its breath
> Is rich beyond the rest; and, when it dies,
> It doth bequeath a charm to sweeten death."

We have two varieties, the *Blanda*, Early Wild Rose and the *Carolina*, Swamp Rose, that begins flowering in May.

I have endeavored to tell when, and where, to find our early wild flowers, I have undoubtedly overlooked some in this hastily written article. My paper only carries us through the spring months and does not include flowering shrubs. Let us go with our children and friends into the woods as nature made them, with our baskets and botanical presses, and study plants, rocks, hills and streams. Not many months ago I chanced to meet an enthusiastic party from the east, passing through our state upon a botanical expedition; they reported finding many rare plants, unknown at the north before. Let us go among them, study and enjoy them. We will be richer in health, happiness and knowledge, besides laying up a store of blessed memories that can never die. "There is not a flower that blossoms on earth but blossomed first in God's thought, and was enjoyed by Him long ago, and by and by He will take us into His upper garden, and show us the ideals from which these flowers sprang, and they shall never fade or die. Every year our Father spreads a carpet, new, fresh and beautiful, over the earth, laying it down to the edge of the waters, and He upholsters the mountains afresh, magnificently, making the world beautiful for us to enjoy, and we may do our part in God's work by weaving in our gardens and flower-spots."

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LOCAL ADAPTATION OF VARIETIES.

BY E. CHASE, OMRO.

The object of recommending different varieties of fruit for general cultivation, was, no doubt, to induce the people of Wisconsin to set out such varieties as were best calculated to stand our variable climate, and produce good fruit that would be perfect at all seasons of the year, and thus add to the wealth and enjoyment of all classes, both producer and consumer; but whether this worthy object has accomplished the desired result or not is, with many, very doubtful.

For the past eighteen years I have been experimenting with different kinds of apples, and with the different methods of propagation. I have now about one hundred and thirty varieties. Most of these I have grafted in the root, stock, and top, and budded, with varied results. Among these varieties are some kinds, and those too, which are highly recommended by the Horticultural Society, which have proved a total failure in my orchard; as the Tallman Sweet, and Golden Russet. These trees are as subject to disease as any of the other varieties, and are also shy bearers, and the fruit is generally knotty and wormy, so much so, in fact, that from about forty trees I have never been able to select anything like fair specimens for exhibition. I have tried grafting them in the top and root, and also budding, but without success in either method; get within a mile of me, on black soil, under-laid with a stiff, red clay, they do finely. My orchard is on a high ridge; the soil is a sandy loam, resting on a subsoil composed of clay and limestone-gravel, well drained. This clearly shows that varieties may do well in one locality, on certain kinds of soil, and yet fail in other places, even in the same neighborhood, on different soil. Ought not this fact to make us cautious how we recommend any variety as adapted to all locations and soils? I was surprised to see that the society at its last annual meeting recommended the Ben Davis for general cultivation, when it has failed in so many localities.

Having put much confidence in the recommendation of the so i-

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ety, knowing that they were, most of them, experienced and scientific fruit-growers, I, and many others, planted largely of the varieties recommended, some of which have proved failures, and are now condemned by those who formerly recommended them. But the greatest evil in the whole matter is, that some nurserymen who propagated the varieties recommended, to the exclusion of many valuable kinds, have large stocks on hand, and as they are subject, like other men, to the love of gain, and look to their own interest, it is hard for them, with, perhaps, a hundred thousand trees of doubtful value in their nursery, to discourage customers from buying them; it is easier, when asked if a variety they consider doubtful is hardy, to refer to the State Horticultural Society's recommendation, and thus shift the burden from themselves upon the society. The society may have erred in this and a few other matters, but it is doing an incalculable amount of good to the whole community.

The society very properly warns the people of the west against buying trees that have been grown at the east, but in so doing it condemns many eastern varieties that would be valuable here if they were only rightly propagated. I moved here from the most mountainous and roughest part of Maine, direct from the White Mountain range; and in starting my orchard here, I obtained from that mountainous region cions of such kinds of apples as were hardy there, and propagated them both by budding and root-grafting. Among those that are doing well are the Rhode Island Greening, Blue Pearmain, Pomme Gris, Black Apple, Woodstock, Belle, Mountain-Sweet, and the Eastern Baldwin. The apple known here as the Baldwin is there called the Late Baldwin. The apples from the grafts brought from Maine are the only ones I have seen of that variety at the west.

The above named varieties have proved very successful with me, when budded or top grafted, but have failed entirely when grafted into the root. This subject of root grafting, it seems to me, is an important one, and requires much scientific and careful investigation, and ought to be candidly and thoroughly considered by all fruit-growers of this section. I profess to have no scientific knowledge of the subject, but the conclusions I have arrived at come as the result of experiments tried in Wisconsin during the last eighteen years, and from careful observations made here and in my

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native state, where the practice of root grafting was nearly abandoned twenty-five years ago.

Another feature, resulting from this practice of recommending different varieties of fruit for all soils and localities, is that, at our annual fairs, the premiums offered for the best five and best ten varieties are always awarded to those recommended by the society. It is so well understood by the public that the judges will limit those regarded as best to the varieties recommended by the society, that those who exhibit confine their specimens to these, to the exclusion of kinds that with them, in their localities, are far better. This tends to increase the popularity of these kinds, even though in certain soils and localities they may be worthless, and serves to defeat one of the most important objects the society has in view, viz, to ascertain what varieties are the best for the northwest. All who compete are laudably anxious to excel and there is little or no inducement to exhibit when the chances are against them, and so, doubtless, many worthy varieties are left at home unnoticed and unknown. But one exception to the above rule and practice has come under my observation, that is the case of a gentleman, who has made it a point of honor to exhibit only those kinds that really do the best in his orchard, and he has always been very successful in obtaining premiums in all classes except the best five and ten.

I think we cannot, for various reasons, speak in too strong terms against setting out trees grown at the east. In the first place they are all root-grafted; and again, they are propagated too much like hot-house plants, stimulated by high culture and rich manure to make a great growth of stock and top, without corresponding roots, or any other desired quality but size. Then, of necessity, they must be a long time out of the ground, and frequently exposed to extremes of heat and cold in their transit here. But while we condemn eastern grown trees, would it not be well to try such varieties as thrive at the east on lands exposed to the rigors of a climate where the ground freezes to the depth of five feet, and in some seasons, still deeper, and yet trees live and bear abundantly to the age of eighty years? This can readily be done by obtaining cions from those localities. I have seen trees in Maine, on the White Mountain range, that were over eighty years old, loaded with fruit. The practice of using seeds obtained from the east, I think, is objectionable for the reason that nearly all the seeds are obtained from

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grafted fruit, and I have learned by experience that such seeds produce but few stocks, and those of an inferior quality.

One other subject, that of cutting the tap root at transplanting, should be taken into careful consideration. You will frequently observe chance seedlings, started and grown without transplanting, in pastures and even by the road side, make fine trees, in some cases even better than those that have been carefully cultivated. The original Mountain Sweeting, which I consider the hardiest and best bearer in my orchard, originated on the side of a high mountain in Maine, and grew, and is still growing and bearing in a pasture so steep and rough that it has received no cultivation whatever; the tree is over eighty years old. But a few cases like this are not sufficient proof that all trees should be set without shortening the tap root. I have tried some experiments, and have come to the conclusion that in setting trees on land having a heavy or wet sub-soil we should shorten the tap root, but on land having a dry sub-soil, it is better to leave the roots entire.

REPORT OF COMMITTEE ON EXHIBITION OF FRUIT AT THE ANNUAL MEETING, 1875.

Your committee on examination of fruit have inspected the fruit on exhibition, and report as follows:

A. G. Tuttle, of Baraboo, exhibited samples of the Fameuse and Plumb's Cider, in good condition, and a box of fresh grapes; Rogers, No. 15, well kept and in fair condition.

J. C. Plumb, of Milton, exhibited a bottle of apple seeds, and the following varieties of apples: Woodland and Hooper, long keepers, good quality and size; Baltimore, Walbridge, Minkler, Flushing, Grimes and Plumb's Cider, all in excellent condition; two varieties seedling apples, not named, small, good quality, and very productive; two varieties seedling apples named "Howard's No. 1," large; "Fisher," medium, both good flavor; two varieties of seedling crabs, one, sweet, cooking, the other, sour, winter, eating, both without crab flavor.

Wm. Finlayson, of Mazomanie, exhibited a variety of crab, No. 17, good keeper, good flavor and size.

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N. F. Lund, of Madison, exhibited dried grapes, Rogers, No. 15, quite good for eating and cooking; Walter, a good substitute for imported dried currants. A further trial in this direction is advised by the committee.

B. B. Olds, of Clinton, exhibited two specimens of King of Tompkins county, quite large and in good condition; one variety apple, unknown, very good, medium size, eating or cooking; also Wine Sap, Tallman Sweet, Limber Twig, Rawle's Janet, Green Everlasting, Jonathan, Victuals and Drink, Clyde Beauty, Belmont, Baltimore, Green Sweeting, and Ben Davis, all in fine condition.

Gould's Nursery presents four varieties of seedlings, Nos. 2, 3, 4, and 6, rather small, quality medium; No. 2, good keeper.

Charles Herschinger, of the Sauk County Nurseries, exhibits three varieties of apples, Domine, Sweet Wine, and Weaver Sweet; one variety seedling apple, large, acid, tender flesh, quality medium. The wood of the seedling is fine grained and sound.

Suel Foster of Muscatine, Iowa, exhibited two samples of the Wealthy, fine looking, good quality, average keeper.

Samuel Rounseville of Sheboygan Falls, has sent two specimens, claimed as seedling by some. Exhibited as Winoski. Evidently some grafted variety. A large apple and of fair quality.

G. J. Kellogg, of Janesville, exhibits Diana grapes, in good condition; also seven varieties of apples, Fameuse, Jonathan, Winter Pennock, Tallman Sweet, Westfield Seek-no-Further, Gloria Mundi and Yellow Bellflower, all in good condition.

E. W. Daniels, of Auroraville, has three specimens of a large yellow apple, discovered in the northern part of Waupaca county, of good quality, and has the appearance of being a good keeper.

W. A. Springer, of Fremont, has sent a box of apples, mostly seedlings, in behalf of the Waupaca county Horticultural Society. Contents as follows: One specimen for a name, Fameuse; Balch, pronounced to be the Detroit Red; Riche's Greening, coarse, quality second rate, sub-acid; Wrightman's Russet, large medium, fair and good, somewhat resembling the Westfield Seek-no-Further; Wolf River, large, red with light yellow, creased, tender, good flavor, appears to be a seedling, some like the Alexander; Balcher, medial conical, good appearance, sweet, good keeper, second quality; Howislar No. 2, pronounced the Westfield Seek-no-Further; Howislar Seedling, good size, flattish, yellow, good, too soft for keeping;

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No. 1, medium, red striped, firm and good flavor, resembles the Vandervere Pippin; No. 2, small, medium, light, striped, round, firm, spicy, rather coarse: No. 3, resembles the Red Romanite, but is not hard enough; No. 4, appearance good, cooking, rather coarse, pronounced to be Northern Spy; No. 5, some resemblance to Ben Davis; No. 6, medium, handsome red, round, tender, white flesh, sub-acid, one of the best of this collection.

Geo. W. Putnam of Ash Ridge, exhibits one variety seedling crab called Snyder crab, past season.

J. P. W. Hill of Windsor, exhibited two varieties of seedling apples; No 1, below medium, quality good, almost sweet, good keeper, resembles Domine; No. 2, Hill's Red, medium, handsome, considered worthy of trial.

G. P. Peffer, of Pewaukee, exhibits several varieties of seedlings, the same as have been brought to notice heretofore, from 1870 to 1874; also cions of the several kinds in perfect condition.

E. H. BENTON,
B. B. OLDS,
A. R. WHITNEY. } *Committee.*

REPORT OF THE COMMITTEE ON NOMENCLATURE.

BY J. C. PLUMB, CHAIRMAN.

The duty assigned this committee is, perhaps, to the masses, the least appreciated of any horticultural labor, yet it is one of great and growing importance in our progress toward science and success in fruit-growing. It is to many a mere bauble only, an ornamental appendage, of no practical value to the farmer, though well enough, and required of the nurseryman.

Year by year, as we devote more study to this subject, we see more need of a thorough revision of our local lists, and a more definite agreement in regard to the names of our fruits. At present there is great confusion of names, and it is not uncommon to see at our annual exhibitions some old varieties under from six to ten different names; old varieties, for various reasons, receiving new names in the west, and new varieties adopting the names of old favorites.

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The labors of this committee are duplex. To professionals they are a necessity, and must result in comparative harmony of nomenclature as the work progresses; to the non-professional class they are an annual study and pleasure, and by both classes are generally most cordially received. Proficiency and real progress in this art, among the more studious and careful of both professional and non-professional fruit-growers of our state, has been marked, since this work was assigned to a special committee.

The investigations of this committee during the past year enable them to report good progress in the work of correcting and substantiating the names of several of our best apples, found well adapted to the state at large. We have also secured some important facts concerning the origin of a number of varieties, which are valuable as matters of history, corresponding with these new fruits of western origin.

We find the Williams Favorite, and Sops of Wine so nearly alike in the fruit and manner of growth as not to be readily distinguished, and therefore badly mixed in some localities. The distinguishing features of the Sops of Wine are more upright and strong growth, darker wood, more hardy tree, less sprightly fruit, of same season.

The Black Vandervere of this state is Hoops, of Warder.

We find that Grimes' Golden has been fruiting in this state for the last fifteen years as Golden Pippin.

The Walbridge, as known in this state, originated in 1818, in Edgar county, Illinois, and was disseminated from the nurseries of Joseph Curtis, of Paris, Illinois, as Edgar Redstreak. It was first introduced into Rock county and grown at the Barker nurseries, near Janesville, in 1854, from the original stock. Mr. Curtis thinks that they sent a lot of root grafts to Southern Wisconsin as early as 1835. From this stock was planted the Sauk county orchard by Mr. Walbridge. The trees were also scattered through Rock county; some in Jefferson county, and doubtless other sections. We have also some traces of the same variety as grown near Muscatine, Iowa, as Kentucky Streak.

We have the facts concerning the early history of this variety from B. O. Curtis, of Paris, Illinois, who also communicates other interesting items regarding many of our western apples, This information is especially valuable as coming from so reliable a source,

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as their author is the son of *the pioneer nurseryman* of that portion of the state.

From the same source we learn that our Utter originated in that county, and was named after a family of that name residing there. Our Fall Winesap, with Bellflower Pippin, Hannah, Illinois Greening, and several other varieties not known here, originated with Joseph Curtis in those early days.

HORTICULTURE AT THE STATE FAIR, 1874.

O. S. WILLEY, SUPERINTENDENT.

The number of entries and the large space occupied by the exhibitors in the fruit and floral department, at the annual exhibition in 1874 evidenced to the regular fair-visitor that there was no lack of interest in this field of labor throughout the state. Old contributors, the "regulars" of the horticultural army, were present with the fruits of their labors, while many volunteer recruits came with joy and gladness upon their faces, and placed at Pomona's feet their first fruit offerings. This was gratifying, and gave general cheer to all.

The anxious lookers-on, as the hall was thronged with visitors from "early morn to dewy eve," told how earnestly the people watch the horticulture of Wisconsin. Shall we say; can we say that Wisconsin is not a fruit state? Experience forbids. All climes are alike, in that none are exempt from severe drawbacks. Michigan has the yellows and curculios to contend with; Illinois is but little better, and both are very subject to Greenland's frost. Even old Michigan is to-day planting more crab apple trees than ever before; and though they may boast of their luscious peach and the melting pear, yet they are not happy, and long for the Transcendents, Hyslops, &c. What shall we say then, but good cheer to all, the faithful, the resolute?

Prominent among the non-professional cultivators who carried off the first prizes in the list competed for, were Wm. Reid, North Prairie; Mrs. M. A. Lewis, Lake Mills; James Ozanne, Somers; B. B. Olds, Clinton; D. Huntley, Appleton; F. C. Curtis, Rocky

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Run; Luther Rawson, Oak Creek; D. T. Pilgrim, West Granville; Daniel Gelser, Oakwood; E. B. Thomas, Dodge Corners; Geo. Jeffery, Five Mile House; Jas. C. Howard, Milwaukee; F. S. Lawrence, Janesville; Myers & Son, East Troy; Geo. W. Ringrose, Wauwatosa.

Among the professional cultivators, these were in their usual places, also taking first premiums: A. G. Tuttle, Baraboo; G. P. Peffer, Pewaukee; Goulds Nursery, Beaver Dam; J. C. Plumb, Milton; Geo. Wolff, Dansville; E. W. Daniels, Auroraville; C. H. Greenman, Milton; Mrs. Alexander Mitchell, Milwaukee; Geo. J. Kellogg, Janesville; Stickney, Baumbach and Gilbert, Wauwatosa.

It would be a matter of special interest to know and to record the varieties of each fruit exhibited, where a premium was awarded. If for the best ten varieties of apples, what they were; also pears or grapes, but I have no record at hand from which to write.

The best ten grapes were shown by C. H. Greenman, and were Delaware, Janesville, Salem, Diana, Lindley, Concord, Worden, Agawam, Massasoit, Rogers No. 43. The second premium was taken by Mr. Kellogg; the varieties exhibited were the Delaware, Worden, Concord, Agawam, Iona, Eumelan, Hartford, Diana, Martha, and Creveling. Best single variety was the Delaware, and I believe that it was a part of every collection; thus showing its acquired popularity.

The floral department drew all eyes. The weary husbandman, who seldom sees aught but toil and care from his daily routine of sowing and reaping; the wife from the cottage by the way-side, and the child, unused to such delights and sweet perfume, thought these really the

> "Bright gems of earth in which perchance we see,
> What Eden was, what Paradise may be,"

And said in their silent heart language, bring flowers:

> "They speak of hope to the fainting heart,
> With a voice of promise they come and part;
> They sleep in dust through the winter hours,
> They break forth in glory! Bring flowers, bright flowers."

And so every passer-by studied and admired each flower, leaf and growth. None could doubt the beneficial influence, for as plant-culture is becoming more and more a custom in every household, though not yet universal, as it is destined to be, still the window-

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garden is fast gaining a hold upon the hearts of the people, and is becoming an unfailing source of pleasure during the long months of snow and ice, only to be satisfied, as the warm sun revives the spring dress of green leaves, and early flowers, with a larger field of operations—the extended window—the lawn.

The professional cultivators who drew first prizes, were Wm. Kitzrow, Milwaukee; A. Middlemas, Milwaukee; H. G. Roberts, Janesville; Mrs. Alex. Mitchell, Milwaukee. There is but little credit due the Milwaukee gardeners. Why they refuse or fail to bring out their plants and flowers I have been unable to conjecture, hence we are dependent upon the non-professionals to brighten our pathways. Here we find Miss Kate Peffer, Pewaukee; Emily S. Smith, Green Bay; Mrs. P. Vale, Milwaukee; Theresa Karzke, Milwaukee; S. B. Smith, Dodges Corners; John Dearsley, Wauwatosa; Mrs. J. W. Park, Dodges Corners; H. W. Roby, Milwaukee.

These collections were universally large, so that with the collections which took second, third and fourth prizes the space was well filled.

Mrs. Alex. Mitchell, who is not classed with either non or professional cultivators, yet includes both, and James Vick of Rochester, New York, who has so very generously contributed to the welfare of the society by his premiums, were present with beautiful and very attractive collections of cut-flowers, which added in a very marked manner to the Hall's appearance.

The exhibition as a whole can be called a success. There might be mentioned some decided marks of progress; enough to know that it is not on the backward track. I am under great obligations to G. J. Kellogg for valuable assistance; and to H. W. Roby is due the chief merit of the Floral Department; and to one and all of my horticultural friends I extend a hearty and cordial good-will for their efforts in making the exhibition a success of which all may feel proud, marking an epoch in life's checkered way, saying, come,

> "I'll teach thee miracles! Walk on this heath,
> And say to the neglected flower, 'Look up,
> And be thou beautiful!' If thou hast faith,
> It will obey thy word."

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FLORAL DEPARTMENT AT THE STATE FAIR.

BY H. W. ROBY, ASSISTANT SUPERINTENDENT.

As year after year rolls by, as wealth and prosperity in the state make their higher marks upon the scale of progress, as fair after fair is held where the people assemble, each to see what his neighbor and fellow-denizen of the state has done or is doing, and to display the results of his own enterprise and culture, the Floral Department of the fair is more and more patronized; is more and more visited by increasing crowds of intelligent and refined people. Never in the history of Wisconsin was this fact so forcibly apparent as at our last State Fair. Notwithstanding the fact that two years ago, several of the professional florists of the state took umbrage at not receiving first premiums on everything they exhibited, and since then, they have kept aloof from the fair, except to see what others were doing, yet the number of people who frequent that department from year to year is rapidly increasing. This is very natural in any country where the people have opportunities for æsthetic culture. Semi-barbarians in every state scout at flowers as but "mere weeds and trash." Cultivated people love them as they love the sunshine and all the other beauties and grandeurs of nature.

The writer, during the fair, took occasion on Thursday, the great day, to make some observations on the drift, so to speak, of Wisconsin sentiment and taste as to its gratification. While each department had its devotees, the Fruit and Flower Department by far out numbered them all in the throngs of the people that surged through the hall. Early in the morning the hall was filled with pleasure seekers. Before anything like a crowd was observable elsewhere on the grounds, Floral Hall was full. Before the crowds in other department became uncomfortably dense, a special police force had to be organized in the Horticultural Hall to turn the throng into the tread-mill channel of going "all to the right;"

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and before noon, the crowd that surged through the hall was like the flood-tide of a great river through straits or dells. The superintendent, with six assistants, had a heavy task to keep all in order to prevent blockades in the crowd. Though not up to the high standard of excellence of some other and older states, yet Wisconsin has reason to be proud of her "fruitfulness." Five hundred feet in length and five or six shelves in height or breadth was Horticultural Hall ladened with the rich fruits of the state; and many were the pleasing comments of fruit cultivators from other states as they inspected the display.

But, what may we truthfully say of the floral exhibit? Surely it was grand. Surely it was beautiful, captivating. One who has visited and exhibited at the fairs of nearly all the states, said while surveying the grand display, "I am amazed that so new a state, one whose resources of wealth are but beginning to be developed, should so excel most of the older states in her floral display."

That Floral Hall should have been a place of enchantment, no one need wonder, when it is borne in mind that the wealth and glory of the tropics, and the radiant beauty of all lands was there displayed in a most charming aggregation. The umbrageous forests of Australia, India, South America and the "Isles of the Sea" were laid under contribution to please and instruct the cultivated and beauty-loving assemblage. From the inter-space from Palestine to the Golden Gate, treasures had been gathered into Floral Hall, and there the people of Wisconsin, many of them for the first time, saw a miniature of the herba and flora of the great outlying world around them. And deep was the study, and many the questions asked concerning the foreign plants and flowers on exhibition.

While the public taste is thus from year to year being cultivated and improved as surely and beneficially as is the quality of stock and farm products of the state, there is still need of greater effort on the part of those who can contribute to that department of our annual fairs, to make it still more a triumphant success than it has hitherto been. Several new features of entry and exhibition need to be introduced before the exhibition can be thoroughly harmonious; and a greater spirit of philanthropy and zeal for the public good must be inculcated in those exhibiting, so that less of petty rivalry and jealousy shall prevail than has heretofore been the case. Also, a better class of premiums should be offered, to induce

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a higher grade of competition. The present premium list signally fails to bring out anything like the best display that the state florists could and would make, if better premiums were offered.

REPORTS OF THE COMMITTEE OF OBSERVATION.

REPORT OF J. M. SMITH.

It may not be in my power to say anything that will really add to the knowledge already in the possession of this society, as to the real cause of the destruction of our fruit trees for the last two or three years, but I have devoted some time, much thought and study to the subject, and have arrived at a theory, at least, as to the cause of much of the wholesale destruction of the past.

One fact seems to be fully demonstrated, at least in the portion of the state that I in part represent, viz: That trees standing in sod were generally injured much less than those standing in cultivated fields; also, those standing in a sod a number of years old stood still better than those in a sod only one year old. Now another admitted fact is, that trees standing in grass-ground or a sod do not grow as fast as those in our cultivated fields. One more fact. Trees in our soil and climate grow very much faster than trees of the same kind do when near the sea-coast, but in the same latitude. Last summer I paid a visit to my native home at the east. It is in one of the best fruit-growing sections of New Jersey, I was strongly impressed with what seemed to me to be the very slow growth of the apple, as well as the pear trees in that country. For instance, one tree now standing in my father's garden I grafted just about forty years ago. It is in a rich spot of ground, and is not more than ten or twelve inches in diameter; it has not reached its prime yet. Some that I grafted about thirty-five years since were full of fruit, but by no means large enough to do their best.

The apple and pear trees in that county have been injured but very little during the last five years, when compared to the destruction that has taken place in the same latitude in Illinois. Another fact is, that the trees there are a long time in coming to bearing; although after they once get at it, they bear immensely, and for a long time.

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In thinking over this subject, not long since, I wrote to one of my sisters at the old homestead, for some statistics with regard to one of the orchards upon my father's farm. The farm has been in the family about eighty years. Here is what she says. "Father says the seeds of the old orchard were planted about 1800. The trees were grafted when four or five years old, and then stood a few years before they were transplanted into the orchard. It was about twenty years after the seeds were planted before the trees commenced bearing. Brothers say, that for the last thirty years, the trees have averaged about twenty-five bushels each, per year, some years having but very few, while other years they would average near fifty bushels each. Father says the old pear trees were set out about the year 1800. As for the fruit I can only say that they are loaded every year, and have been for the past sixty years, I think. I should think they would average twenty bushels each, per year. The young orchard has been set out about twenty years, and has borne but little, except for the last two years."

Now, here are three facts, viz: The trees grow very slowly; they are a long time in coming into bearing; they bear immensely, and for a long time, after they do begin. Now, one thing more. There is an orchard in Calumet county, in this state, that has been set from twenty to twenty-five years. It stands in an upland meadow; has been plowed perhaps two or three times. The balance of the time it has been mowed and pastured. The trees have made what would here be called a very slow growth, and they bore but very little for quite a number of years. That orchard has been injured less during the last five years than any other that I know of in this state.

Upon the other hand, as far as my experience and observation have gone, the trees that have made the most rapid growth, and have soonest come into bearing, have, as a general thing, suffered the most, sometimes even to the destruction of the entire orchard. Our growing seasons here are a little shorter than they are in New Jersey.

Now, gentlemen, upon these facts I have based the following theory, viz: That our soil and climate stimulate the trees to a very rapid growth, and to very early bearing. The cultivation in many cases being such as to develop the most rapid growth possible, as well as an early fruiting, hastens still further what soil and climate

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have already developed too rapidly for the permanent good of the tree. Hence, the tree makes so great a growth of wood that it does not ripen sufficiently to endure our stern and usually dry winters. It may be said that the great destruction of 1872 and '73 was confined more to the roots than to the tops or bodies of the trees. Grant it. Does that fact change the theory which I am advancing? May not the roots be subject to these same laws, and have suffered from the same causes?

Now look at the facts once more. Trees at the east grow much slower than here; they are much longer in coming into bearing; they bear very heavily and for many years after they do commence. The trees in our own state, as far as my observation has extended, have stood the best where they have made a slower growth than the average of the orchards, provided that growth has been a healthy one. On the other hand trees that have made a very rapid growth, and have been brought into bearing very early, have suffered the most. I think the careful observation of all will confirm these facts; and, if so, do they not point to a remedy in so cultivating as to have a slower growth of wood, that growth more perfectly ripened, and prepared for the long and hard winters which they have to endure? This will of course defer the early fruiting of the trees; but let us wait patiently. In this matter we are not working for ourselves alone, but for those who are to come after us. I do not wish to follow up this subject at present, but simply to bring it to your notice for further consideration, if you think it worthy of it.

With regard to the small fruits, the last year has not been a very favorable one. Strawberry plants were in many cases injured by the long freezing and thawing last spring, after winter weather was over. Raspberries which endured the winter of 1872–73, and came out uninjured, and bore heavily the following summer, were, in many cases, entirely killed last winter, both root and branch. Yet the winter was unusually mild, though it was long. I do not see how the moderate cold of two or three weeks more than usual of cool fall and late spring weather should have destroyed them, both top and bottom, yet the fact remains, that in Brown county and in the counties adjoining, they were, very generally, either entirely killed or so badly injured as to make the crop about a failure. As regards this matter I have not even a theory to propose, and shall have to ask for at least another year to find facts enough to base one upon.

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WEATHER RECORD FOR TWENTY YEARS BY G. J. KELLOGG, JANESVILLE.

The following record of the weather, kept at my place for the last twenty years, has many points of interest and may be useful. The thermometer used, hung in the same position for twenty years, is a spirit gauge, self-registering, giving the coldest degree reached during each twenty-four hours, usually the coldest at about sunrise. The aggregates given are obtained by adding the coldest temperature each day when the spirit has past below zero. Example—5 days at 20 below zero would aggregate 100.

1855—January thaw with rain; 5th to 7th February, good sleighing; March 5th a thaw; a backward spring; wheat sowed April 17, 20; May 9th and 10th, ice; June 3d, frost; October 5th and 6th, ice; December 24th, 28 degrees below zero.

1856—January 9th, 32 degrees below zero, below 13 days; February 3d, 30 below, below 12 days; December 7th, 19 below, below 15 days; total number of days below, 40, aggregate, 546.

1857—January, one of the coldest ever known, 30 to 32 below. A mean temperature of 1¼ deg. with 4 observations daily, at 8 and 10 a m, 12 m, and 2 p m; February 5, rain, with heavy freshet; March 10, below zero; April 22, sowing wheat; May 12, ice; November 19, snow six inches; December, plowing all the month.

1858—January, the warmest ever known, 4 observations daily gave a mean temperature of 29½, extremes 2 to 55; February 10, 24 below, below for 10 days; March 2, zero; November 19, 3 below, below for two days; December 9, 18 below, below for three days; total days below, 16, aggregate, 144.

1859—January 22, 16 below, below for six days; February 10, 8 below, below for 4 days; December 31, 20 below, below for 6 days; total days below 16, aggregate, 136.

1860—January 2, 22 below, below for 6 days; February 1, 12 below; December 23, 14 below, below for 4 days; total days below, 11, aggregate, 108.

1861—January 31, 25 below, below for 5 days; February 8, 18 below, below 6 days; November 30, 15 below, below 2 days; December 1, 15 below, below 2 days; total days below, 15, aggregate, 203.

1862—January 12, 28 below, below 8 days; February 2 and 14, 25 below, below 4 days; December 6 and 7, 12 below; total days below, 14, aggregate, 258.

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1863—January 7, 4 below; February 3, 16 below, below 3 days; December 31, 25 below, below 2 days; total days below 6, aggregate, 75.

1864—January 1, 35 below, below 11 days; February 17, 23 below, below 4 days; December 8, 25 below, below 12 days; total days below 27, aggregate, 430.

1865—January 18, 16 below, below 10 days; December 23, 19 below, below 7 days; total days below, 17, aggregate, 144.

1866—January 20th, 15 below, below for 7 days; February 16th, 23 below, below for 8 days; December 30th, 7 below, below for 3 days; total days below, 18, aggregate, 173.

1867—January 17th, 21 below, below for 7 days; February 9th, 10 below, below for 1 day; March 13th and 14th, 15 below, below for 5 days; November 30th, 3 below, below for 1 day; December 23d, 2 below, below for 2 days; total days below, 16, aggregate, 135.

1868—January 13th, 12 below, below for 13 days; February 10th, 28 below, below for 9 days; March 3d, 16 below, below for 3 days; April 5th, 5 below, below for 1 day; December 12th, 21 below, below for 11 days; total days below, 37, aggregate, 303.

1869—January 25th, 5 below, below for 4 days; February 27th, 4 below, below for 5 days; March 6th, 8 below, below for 5 days; November 21st, 5 below, below for 2 days; December 20th, 21st, 7 below, below for 2 days; total days below, 18, aggregate, 67.

1870—January 18th, 11 below, below for 6 days; February 20th, 16 below, below for 3 days; March 16th, 9 below, below for 2 days; December 23d, 18 below, below for 11 days; total days below, 22, aggregate, 169.

1871—January 18th, 3 below, below for 2 days; February 10th, 12 below, below for 6 days; November 23d, 5 below, below for 3 days; December 5th, 21 below, below for 11 days; total days below, 22, aggregate, 166.

1872—January 29th, 30th, 21 below, below for 8 days; February 1st, 19 below, below for 10 days; March 12th, 9 below, below for 4 days; November 27th, 28th, 29th, 9 below, below for 6 days; December 24th, 35 below, below for 17 days; total days below, 45, aggregate, 439.

1873—January 29th, 18 below, below for 12 days; February 23d, 20 below, below for 8 days; March 4th, 6 below, below for 2 days; total days below, 24, aggregate, 170.

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1874—January 15th, 14 below, below for 8 days; February 24th, 5 below, below for 1 day; November 30th, below for 1 day; December 29th, 12 below, below for 2 days; total days below, 12, aggregate, 85 degrees.

1875—January 9th, 28 below, below for 18 days, aggregate, 212; February 7th, 33 below, below 20 days, aggregate, 322; aggregate for the two months, 534; 4 days in March, at zero and below, aggregate, 8.

The foregoing record shows each month and the day of the month when the thermometer marked the coldest at, or below zero. My altitude is 75 feet above the river, 240 feet above Lake Michigan, and 823 feet above the sea.

The following will show the 5 coldest months:

February 1875, 20 days below zero, aggregating 322 degrees.

January 1864, 11 days below zero, aggregating 223 degrees.

December, 1872, 17 days below zero, aggregating 221 degrees.

January, 1856, 13 days below zero, aggregating 219 degrees.

January, 1875, 18 days below zero, aggregating 212 degrees.

The coldest year (not taking into account the present year, whose record is not yet complete) 1856, 40 days below zero, aggregating 546 degrees.

The warmest year, 1869, 18 days below zero, aggregating 67 degrees.

The warmest winter month, January 1858, when the coldest day was 2 above zero.

January and February 1875, the greatest number of days in any month, touching zero and below in the 20 years.

January and February, 1875, the coldest consecutive months during the 20 years, 38 days below, aggregating 534 degrees; being 119 degrees colder then the corresponding months of 1856.

The aggregate of the coldest year of the 20 years (1856) is 546 degrees, while that of 1875, with record not complete, is already 542 degrees.

WEATHER OBSERVATIONS BY G. P. PEFFER, PEWAUKEE.

The present winter has been the severest one we have experienced for many years, and I fear that it will prove more injurious to our

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trees and fruit than any season we have had yet. From a record of the weather, kept at Pewaukee, I give the coldest day in each year for the last thirteen years. February 7, 1861, 18 degrees below zero; January 13, 1862, 20; February 3, 1863, 12; January 1, 1864, 36; January 8, 1865, 17; February 12, same year, 17; February 4, 1866, 22; February 20, 1867, 19; February 10, 1868, 26; January 5, 1869, 9; February 20, 1870, 11; February 13, 1871, 13; December 23, 1872, 24; January 24, 1873, 5; January 5, 1874, 9; January 9, 1875, 29; which was the coldest day of the season up to the time of our present meeting. For sixteen days the temperature has not risen up to zero, but the average for those days was six degrees below zero. In 1866, for fourteen days, the mercury stood below zero, the average being two degrees below, Thus far it has been the coldest winter since 1841 in long continuance of extreme cold, and I apprehend that fruit trees, vines &c., will suffer as much or more, all over the northwest, than they did in 1856, 1864 and 1873; especially where there has been little or no snow or mulch to protect the roots of the trees.

FRUIT OBSERVATIONS BY C. H. GREENMAN, MILTON.

The limited time which I have devoted to the duties assigned me on your committee of observation will render my report of little use to the society, and perhaps of no great interest to the members present.

The winter of 1873–74 was comparatively mild. Apple trees blossomed abundantly, but failed to set a crop of fruit, except on retentive soils, where the moisture prevented injury to the roots the previous winter. The Golden Russet, however, was an exception in nearly all the orchards I saw. Sops of Wine and Red Astrachan bore quite freely. The failure to fruit, I attribute to a loss of vitality, occasioned by dry freezing of the roots, as trees on sandy, light soils suffered most.

The codling moth seems as destructive as ever. Fire-blight has not been as destructive as in previous seasons. The enfeebled condition of the trees prevented a rapid growth during the early part of the season, which growth is usually overtaken by the hot wave that passes over the country about the first of June. The heated

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condition of the atmosphere seems to produce a chemical change of the fluids contained in the succulent growth of wood, which on its return toward the roots of the tree discolors the bark, and sometimes extends to the previous year's growth. Soon the end of the limb dries up, and we say our trees have blighted. My theory is that any process that will prevent a rapid growth in the early part of the season will mitigate this scourge. Many of our hardy trees are especially subject to this difficulty, no doubt from their early growth, which, where not injured, enables them to ripen their wood early in the fall, and thus fortifies them against the severity of the winter.

The plum crop was mainly destroyed by the little Turk. Cherries were very fine; Early Richmonds, especially. Currants were a short crop with us.

Fresh beds of the Wilson Strawberry fruited abundantly. Green's Prolific were not as prolific as they are some seasons. Boyden's No. 30 had a good show of fruit, as also his No. 15. Arena ripened first, yielding fairly. President Wilder was the last to ripen, the dry weather not giving it a good chance to show off to advantage.

Raspberries were a medium crop; Mammoth Cluster taking the lead in productiveness, yet not much in advance of the Doolittle.

Grapes ripened early and were abundant, Janesville coming in about two weeks ahead of the Concord, but the latter made up in quality, this season, what it lacked of being on time. Delawares were extra fine in quality, bringing me six dollars a case, where Concords only sold for two. Roger's No. 9 were excellent, as also were No. 15; but Salem did not ripen, and were inferior in quality. Worden was superior to Concord in flavor. All varieties ripened their fruit perfectly, and have gone into winter-quarters in excellent condition, and will probably fruit abundantly another season. This is the case with all fruit trees, the late frosts giving time to thoroughly ripen the wood.

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REPORTS ON FRUIT AND FRUIT TREES.

REPORT OF JAS. M. MORSE, WAUSHARA COUNTY.

We have already quite a variety of apples well adapted to our county, and the fact that there are fine, healthy orchards scattered throughout the Indian lands, annually producing crops of the finest fruit, demonstrates, beyond all doubt, that apples can be grown here in abundance.

It is true that many of us do not succeed; some from peculiarities of soil or location, but more from gross neglect, and want of proper cultivation. It is estimated that seventy-five per cent. of all trees planted in our county are lost by bad management, or by making a poor selection when buying.

The truth is, a very large class of those who plant, look upon their work as finished when they have made a hole in the ground into which the roots can be crowded, and sufficient earth has been thrown about them to hold them upright. They expect the trees will thrive and vie in hardiness with the oaks, even when they pasture the orchard with hogs, sheep, and cattle; and when failure follows such treatment, they divide their curses between the climate and the nurserymen, all unconscious of any fault on their own part; yet it is very evident, that with such culture, they would not have succeeded even in the garden of Eden.

I have learned, that to attain success in fruit-growing, we must plow the ground deep; get the trees from some reliable nurseryman, and select good, hardy, and thrifty trees; let all tree pedlers severely alone; set the trees about two inches deeper than they were in the nursery, and as soon as they are well set out, mulch them with old, rotten straw, and keep them mulched both summer and winter. With this method of culture we can reasonably expect to raise fruit here.

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REPORT OF JOHN SPENCE, FORT HOWARD.

A long list of varieties of apple trees that have gone to destruction in this section might be given, but the most important question is, not what are gone, but what are left that we may depend upon. The following varieties are those that with us came through the winter of 1872-'73, and are the best adapted to our wants.

Tetofski, Duchess of Oldenburg, Price's Sweet, Fourth of July, Red June, Haas, Fall Stripe, Autumn Strawberry, and Early Red came through uninjured and have since made as good a growth as usual. Perry Russet, Jonathan, Red Astrachan, Lowell and Sweet June were slightly injured. Of Ben Davis, some were killed, some were injured, and others came through all right. Of the five varieties recommended by the State Horticultural Society, four were injured; Fameuse, Tallman Sweet, Red Astrachan, and Golden Russet. Of crabs, Transcendent, Hyslop, Soulard, Red and Yellow are quite uninjured. The Willow Twig is recommended as a hardy variety, but with me it killed out before the winter of 1872-'73, and that winter killed all in the nursery down to the snow.

We have a list of summer and fall apples on which we can depend; what we need is long keeping winter apples. In the spring of 1873, I procured cions of the Walbridge and Pewaukee, from Mr. Peffer. They were not cut till February, yet not five per cent. failed to start, and they have since made a fine growth.

I attribute the destruction of our trees to the continuous cold weather. My trees were all killed in the top, while the roots are uninjured. This is, doubtless, the result of a good mulch of snow, which protected the roots from the extreme cold.

REPORT OF EDWIN NYE, FREMONT.

All who have planted, watched and nursed fruit trees for any length of time know the satisfaction there is in digging out the dead trees. Having had my share of this kind of satisfaction, for the benefit of others I give the result of one year's experience in my orchard in this line; the effects of the winter of 1872-73.

Out of fourteen Tallman Sweets, planted seventeen years, the best one died, and several others were injured. Of seven Colverts, the same

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age, only two are alive. Two out of four Northern Spys died. I had four Fameuse which had been set ten years of these two were killed; while eight trees, planted four years, came out all safe. Four choice trees, Duchess of Oldenburg, seven years planted, all dead; but of six of the same variety planted four years, only one died. Three St. Lawrence, ten years planted, all gone, while two trees, only four years planted, were unharmed. Two Golden Russets, set out seven years, came through all right; also three Keswick's Codling, set seven years, one dwarf; two Red Astrachan, set eleven years, and five set six years, were all sound. One Rawle's Janet, eleven years set, unharmed; but two, set four years, died. Two Fall Strawberry, set eleven years, all right. Of seven Grimes Golden Pippin, planted four years, only two are left. Of twelve seedlings, set twelve years, three were killed. Of five Wagner, set four years, four are gone; also one each of Willow Twig and Bailey Sweet, out of two, set four years. Four out of six Ben Davis, set three years, gone; also one out of two Yellow Bellflower, same age. One Sops of Wine, planted eleven years, three planted six years, and three Tetofski, planted three years, were all uninjured.

This is not the whole list but enough to show the result. Quite a number of trees set out on trial, one or two of a variety, were killed in the same proportion. A few nursery trees of my own planting and grafting have suffered less than the older trees. Were we to follow the advice of some and reject all varieties, a portion of which were killed, there would be no stopping place, for of all the trees I have had set for any length of time, the Red Astrachan is the only variety which has escaped injury, and if it could be made to bear more freely, I should place it first on the list for its season; but with me it has been a sly bearer. Like many others, I had not the courage to plant very extensively the past season but set a few Tallman Sweets, which I regard as the most profitable variety we raise, a few Fameuse, Duchess of Oldenburg, Sops of Wine, Golden Russet, Bailey Sweet and Willow Twig. My plat of dwarf trees, 120 in number, set in 1873, are all alive and doing well. I like the appearance and growth of the Tetofski as a tree, but would like to test the fruit before setting many more trees. I am testing several of the new and much praised kinds, but cannot, as yet, say much for or against any of them.

What we need is really first-class, winter apples. We want hardy

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trees, good bearers, good keepers, and good fruit. Our summer and fall varieties are good and the trees can be depended upon, except in extraordinary seasons, but aside from the Tallman Sweet and Golden Russet, we have hardly a winter variety which can be relied upon.

CRANBERRY CULTURE.

BY A. C. HITCHCOCK, TOMAH.

In Milwaukee Journal of Commerce.

Of the many interests that have been developed from the natural resources of Wisconsin of late years, few people, probably, are aware of the importance of the cranberry production.

From a small beginning on a marsh near Berlin, eighteen years since, the cultivation of this succulent berry has widely extended over the northern section of the state. This undertaking has been stimulated by the enormous yearly yield and the certain profits of the crop.

The marshes that are the oldest under cultivation are at Berlin, where Carey Brothers, and H. S. Sackett have 300 acres each. J. D. Waters 40 acres, and the marshes of Ruddock, Mason & Co., and J. D Williams; about 1,000 acres in all, under cultivation. The yield is about 100 bushels per acre. These improved marshes are said to be valued at $1,000 per acre. Extending west from Berlin there is a cranberry belt embracing a portion of Monroe and Wood counties, from the marshes of which cranberries in their native and cultivated state have been picked in large quantities, and of equal quality to those in any other section of the state. The newly improved marshes on this belt comprise about 2,500 acres, and some of those in bearing condition last fall yielded about 50 bushels to the acre. The marshes that have been put under improvement in the section last spoken of are known as those of Balch, F. O. Wyatt, Beers, Remington, Brooks & Wise, and the Hitchcock Cranberry Company

The completion of the Wisconsin Valley Railroad through this section of the state two years since has opened up this country, and as a natural consequence, those marshes through which the road

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passes have been greatly enhanced in value on account of this accessibility.

The cranberry marsh of the Messrs. Bears is situated near Remington, on the Wisconsin Valley Railroad. Three years since they entered a half section of the marsh, and by industry and energy have laid the foundation for a fortune. The marsh has been ditched and drained so that they can control the water on one hundred acres. The crop the first year was 200 barrels; the second year 800, and the present year 2,000 barrels.

The Hitchcock Marsh is located on the Wisconsin Valley road, four miles from its junction with the West Wisconsin. The entire property owned by the company comprises 2,000 acres. The lay of the land and the character of the soil make this spot especially adapted to the growth of cranberries; it is situated in a valley, with a basis of peat, surrounded by wood land, the surface water from the adjacent country draining into it. An additional supply of water has been secured to meet all contingencies by tapping one of the feeders of the Lemonwier River above it, and conveying the water in a canal four and a half miles through the marsh to a branch of the same river below. Ditches to the extent of several miles, for the purpose of drainage, have been located with such care that with the aid of dams the surface of the marsh is under complete control. Some of these dams are used for carriage ways, and while riding over them on dry, hard sand, one would scarcely realize that these are spots where, a short time since, it would have been impossible to drive a horse. The dams, miles in length, are built of sand, protected with peat backs, making a very substantial work. In these, at proper points, are timber gates of the latest improvements for controlling the water. This arrangement forms a series of marshes, each of which can be cultivated independent of the others. These improvements extend over a territory of one thousand acres.

For this berry there is a never failing market, and no over production is possible, from the very nature of the case. The demand is increasing from year to year. It has become an indispensable article for the table, and the people will have it, whether the price is eight or twenty dollars per barrel. A writer says that, "it is quite certain that the future cranberry grower will have a more widely extended market than at present, considering the small amount of

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land on which the cranberry can be raised, compared with the vast country extending from the Atlantic to the Pacific." Comparing our native marsh with the best cultivated lands in New Jersey, it will be found that ours is fully equal.

It is a good showing for Wisconsin when it is taken into consideration that the cost per acre of improved cranberry lands at the east is from $400 to $600, while in Wisconsin the expense is $50 at the outside.

By reference to an article in the United States Commissioner's report of agriculture, entitled, "the cranberry interest," we find it stated that the crop in New Jersey is as follows: "Taking one year with another, averaging the production of cultivated fields, whenever reported, probably one hundred bushels per acre is a fair estimate at the time the vines come well into the bearing."

On inquiring of our largest growers, as to the average crop, the estimate is, "taking one year with another," at no less rate, and by some of them considerably larger. It is safe to say, however, that when the vines have full possession of the ground, one hundred bushels per acre is a fair estimate, although in several places, the past season, the yield was full two hundred bushels, and in some favored spots, much larger, showing conclusively that our lands are as productive as any others, even where the greatest amount of labor and capital have been expended.

Accounts of the noted Carey marsh at Berlin, state that its increase of production has been 8,000 barrels in four years on 300 acres, and from the "best forty" there has been taken 3,000 barrels in one season, or 300 bushels to the acre, which netted, it is understood, nearly $30,000.

Of all the fruit-bearing plants, the cranberry is the hardiest, being unaffected by the extremes of temperature. It needs but little if any care, and does not require renewal. This fruit is less perishable, continuing good the year through, retaining its long-keeping qualities in all climates. Its health-giving properties are known and acknowledged especially in places where bilious diseases prevail.

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TOP-GRAFTING APPLE TREES.

BY E. G. MYGATT, RANDALL.

From the Western Farmer.

Top-grafting has been much practiced for the purpose of changing seedlings to good varieties, and for double working slow bearing, root-grafted trees. Much injury has been done by traveling grafters, who have mutilated many orchards, and used cions not well selected or not in condition to grow. My object in this article is to ask the question: Can we top-graft proved seedlings on our iron-clad, root-grafted trees, with cions of eastern varieties of great value, which do not usually succeed as root-grafts in the northwest? Circumstances in our neighborhood encourage the hope that many, if not most of our tender eastern sorts, can be safely cultivated in this way.

I deem this subject worthy of the attention of nurserymen and orchardists, that further trial may be made. Facts here show, that tender kinds will bear many degrees more of cold as top-grafts on a hardy variety than they do as root-grafts. On a farm three miles west of Richmond and half a mile south of the Wisconsin state line, on a large prairie, there are quite a number of top-grafted seedling trees, all doing well and bearing fine crops. The seeds were planted about twenty-five years ago. When seven years old, a part of them were top-grafted with cions from New Hampshire. Among these cions was the Baldwin, grafted eighteen years since; one tree at four feet from the ground and another in several limbs near the body, about five feet high. These are now large, vigorous, healthy, bearing trees. Two Jewett's Red, grafted at the same time, are large bearing trees; the fruit is highly praised by all who have seen and tasted it. The Swaar, grafted later in the tops of these seedling trees, bear finely, and stood the winter of 1872–'73 without injury.

A good orchard in Bloomfield, Walworth county, has several top-grafted, Baldwin trees which have not been injured by the winters

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here, and are good bearers. A near neighbor of mine had a Twenty-Ounce Pippin tree, sixteen years old, from which, five years since, I grafted about a dozen limbs of a tree in our orchard. The cions all grew and made a fine top. Three years ago two other hardy, root-grafted trees were double worked with Twenty Ounce cions from my neighbor's tree. My neighbor's tree, a root-graft, was killed by the winter of 1872-73, while of the fifty grafts on my three trees, one fourth of a mile away, not one was injured; all have made a fine growth this summer.

Three years ago I had two monstrous Pippin trees grafted with the Baldwin. About fifteen grafts grew, all of which came through the hard winter safely and are doing well. The record kept in my family during the hard winter shows that the mercury stood 22 degrees below zero in the morning, December 22d, and 25 below in the evening; December 23, 22 below; December 24, 32 below; January 28, 21 below; January 29, 28 below; February 2, 21 below; February 23, 20 below. If the Swaar, Jewett's Red, Baldwin and Twenty Ounce went safely through such a severe winter as top-grafted trees, what should it teach us?

It is well known that seedling apple trees are not all hardy. They might be transplanted, say at two years old, and be tested for several years before top-grafted. It would probably be the better way to double work well proved, hardy, root-grafted trees by top-grafting. Nurserymen are generally honest, good men, who would like to do right with their customers. Would it benefit them to bud on the hardy sorts some of the valuable, less hardy kinds, during the second summer, or whip-graft at two years old, and sell their trees at three years old? This, if successful, would give a much greater variety of better fruit than any of our Iron Clads now give us.

Apple trees which drop their fruit before it is matured should be rejected. We have six Rhode Island Greenings which have been growing as top-grafts about ten years. They have not been injured by the winters, but they blossom but little and drop their fruit before maturity. I can raise ten bushels of Wood's Greening (top-grafted), where I can one of the Rhode Island Greening, from the same age and amount of limbs. The Wood's Greening bears abundantly, and hangs firmly until October, keeps until March, and is but little inferior in quality to the Rhode Island Greening.

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PREMIUMS AWARDED.

IN THE

FRUIT AND FLOWER DEPARTMENT

AT

THE WISCONSIN STATE FAIR,

Held at Milwaukee, September, 1874.

Fruits by professional cultivators.

APPLES.

Greatest variety, A. G. Tuttle, Baraboo	$10 00
Second best, G. P. Peffer, Pewaukee	7 50
Third best, Gould's Nursery, Beaver Dam	5 00
Fourth best, Geo. Wolff, Thiensville	3 00
Best ten varieties adapted to the northwest, G. P. Peffer, Pewaukee	10 00
Second best, Gould's Nursery	7 50
Third best, A. G. Tuttle, Baraboo	5 00
Fourth best, Geo. J. Kellogg, Janesville	3 00
Best five varieties adapted to the northwest, Gould's Nursery	5 00
Second best, Geo. J. Kellogg	3 00
Third best, G. P. Peffer	2 00
Largest variety winter, A. G. Tuttle	10 00
Second best, G. P. Peffer	7 50
Third best, George J. Kellogg	5 00
Fourth best, Gould's Nursery	3 00
Best five varieties, winter, A. G. Tuttle	5 00
Second best, C. H. Greenman, Milton	3 00
Third best, Gould's Nursery	2 00
Best ten varieties without regard to adaptation, A. G. Tuttle	5 00
Second best, George Wolff	3 00
Third best, E. W. Daniels, Auroraville	2 00
Best plate Red Astrachan, A. G. Tuttle	2 00
Second best, E. W. Daniels	1 00
Best plate Duchess of Oldenburg, A. G. Tuttle	2 00
Second best, Gould's Nursery	1 00
Best plate St. Lawrence, A. G. Tuttle	2 00
Second best, E. W. Daniels	1 00
Best plate Fameuse, G. P. Peffer	2 00
Second best, George Wolff	1 00
Best plate Utters, J. C. Plumb, Milton	2 00
Second best, G. P. Peffer	1 00
Best plate Plumb's Cider, A. G. Tuttle	2 00
Second best, G. P. Peffer	1 00
Best plate Seek-no-Further, George Wolff	2 00
Second best, G. P. Peffer	1 00

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Best plate Willow Twig, G. P. Peffer	$ 2 00
Second best, George J. Kellogg	1 00
Best plate Tallman Sweet, E. W. Daniels	2 00
Second best, Gould's Nursery	1 00
Best plate Golden Russet, George Wolff	2 00
Second best, Gould's Nursery	1 00
Largest apple, A. G. Tuttle	2 00
Second largest, G. P. Peffer	1 00
Heaviest apple, A. G. Tuttle	2 00
Second heaviest, G. P. Peffer	1 00

PEARS.

Best and greatest variety, G. P. Peffer	7 50
Second best, Geo. Wolff	4 00
Third best, Gould's Nursery	2 50
Fourth best, Geo. J. Kellogg	1 00
Best five varieties, Geo. Wolff	3 00
Second best, G. P. Peffer	2 00
Third best, Gould's Nursery	1 00
Best three varieties, G. P. Peffer	3 00
Second best, Gould's Nursery	2 00
Best Flemish Beauty, Gould's Nursery	3 00
Second best, A. G. Tuttle	2 00

PLUMS.

Best and greatest variety, G. P. Peffer	5 00
Second best, A. G. Tuttle	3 00
Third best, Geo. Wolff	2 00
Best Miner Plum, C. H. Greenman	2 00
Second best, G. P. Peffer	1 00
Best native or wild plum, G. P. Peffer	2 00
Second best, C. H. Greenman	1 00

PEACHES.

Best show peaches, named fruit, Mrs. Alexander Mitchell	2 00
Second best, G. P. Peffer	1 00

J. W. PARKS,
B. B. OLDS,
F. C. CURTIS,
Committee.

GRAPES.

Best and greatest variety, G. J. Kellogg, 19 varieties	$10 00
Second best, A. G. Tuttle, 17 varieties	7 50
Third best, C. H. Greenman, 20 varieties	5 00
Fourth best, G. P. Peffer, 20 varieties	3 00
Best ten varieties, C. H. Greenman	7 50
Second best, George J. Kellogg	5 00
Third best, G. P. Peffer	3 00
Best five varieties, A. G. Tuttle	5 00
Second best, C. H. Greenman	3 00
Third best, Geo. J. Kellogg	2 00
Best three varieties, Geo. J. Kellogg	3 00
Second best, C. H. Greenman	2 00
Third best, A. G. Tuttle	1 00
Best two varieties, C. H. Greenman	2 00
Second best, A. G. Tuttle	1 00
Best single variety, Geo. J. Kellogg	3 00
Second best, C. H. Greenman	2 00

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Best three bunches Concord, C. H. Greenman	$2 00
Second best, George J. Kellogg	1 00
Best three bunches Delaware, George J. Kellogg	2 00
Second best, C. H. Greenman	1 00
Best single variety, quality to rule, C. H. Greenman	5 00
Second best, George J. Kellogg	3 00
Best show foreign grapes, Mrs. Alexander Mitchel	3 00
Second best, G. P. Peffer	2 00

CRABS.

Best and greatest variety, named, Gould's Nursery, ten varieties	3 00
Second best, A. G. Tuttle, seven varieties	2 00
Third best, George J. Kellogg, five varieties	1 00
Best plate Hyslop, A. G. Tuttle	1 00

F. S. LAWRENCE,
J. M. SMITH,
H. M. THOMPSON,
Committee.

SWEEPSTAKES ON FRUIT.

Best collection fruit of all kinds, G. P. Peffer	$ 7 50
Second best, George J. Kellogg	5 00
Third best, Gould's Nursery	3 00

J. M. SMITH,
F. C. CURTIS,
Committee.

Fruits by non-professional cultivators.

APPLES.

Best and greatest variety, William Reid, North Prairie	$10 00
Second best, B. B. Olds, Clinton	7 50
Third best, Geo. Jeffery, Five-Mile-House	5 00
Fourth best, James Barr, Jefferson	3 00
Best ten varieties adapted to the northwest, Mrs. M. A. Lewis, Lake Mills	10 00
Second best, Geo. Jeffery	7 50
Third best, B. B. Olds	5 00
Best show ten varieties without regard to adaptation, J. Ozanne, Somers	5 00
Second best, William Reid	3 00
Third best, C. H. Jacobs, Wauwatosa	2 00
Best five varieties adapted to the northwest, William Reid	5 00
Second best, Mrs. M. A. Lewis	3 00
Third best, F. C. Curtis, Rocky Run	2 00
Best and largest variety winter, B. B. Olds	10 00
Second best, William Reid	7 50
Third best, J. Ozanne	5 00
Fourth best, Geo. Jeffery	3 00
Best five varieties winter, William Reid	5 00
Second best, F. C. Curtis	3 00
Third best, Daniel Gelser, Oakwood	2 00
Best plate Red Astrachan, D. Huntley, Appleton	2 00
Second best, James Barr	1 00
Best plate Duchess of Oldenburg, William Reid	2 00
Second best, D. Huntley	1 00
Best plate Fameuse, D. Huntley	2 00
Second best, D. T. Pilgrim, West Granville	1 00
Best plate St. Lawrence, B. B. Olds	2 00
Second best, D. Huntley	1 00
Best plate Utter, F. C. Curtis	2 00
Second best, James Barr	1 00

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Best plate Plumb's Cider, F. C. Curtis	$ 2 00
Second best, James Barr	1 00
Best plate Seek-no-Further, Luther Rawson, Oak Creek	2 00
Second best, D. Huntley	1 00
Best plate Tallman Sweet, D. Huntley	2 00
Second best, D. T. Pilgrim	1 00
Best plate Golden Russet, Luther Rawson	2 00
Second best, D. T. Pilgrim	1 00
Best plate Willow Twig, Mrs. M. A. Lewis	2 00
Second best, James Barr	1 00
Best plate Ben Davis, F. C. Curtis	2 00
Second best, B. B. Olds	1 00
Largest apple, Daniel Gelser	2 00
Second best, George Jeffrey	1 00
Heaviest apple, Daniel Gelser	2 00
Second best, F. C. Curtis	1 00

PEARS.

Best and greatest variety, E. B. Thomas, Dodge's Corners	7 50
Second best, J. Ozanne, Somers	4 00
Third best, Geo. Jeffery, Five-Mile-House	2 50
Best five varieties, J. Ozanne, Somers	3 00
Second best, E. B. Thomas, Dodge's Corners	2 00
Third best, James Barr, Jefferson	1 00
Best three varieties, E. B. Thomas, Dodge's Corners	3 00
Second best, J. Ozanne, Somers	2 00
Best Flemish Beauty, E. B. Thomas, Dodge's Corners	3 00
Second best, James Barr, Jefferson	2 00

PLUMS.

Best and greatest variety, Geo. Jeffery, Five-Mile-House	5 00
Best Miner, Mrs. M. A. Lewis, Lake Mills	2 00
Best native or wild, William Reid, North Prairie	2 00
Second best, Mrs. M. A. Lewis, Lake Mills	1 00

PEACHES.

Best show named, Jas. C. Howard, Milwaukee	2 00
Second best, J. Ozanne, Somers	1 00

A. G. TUTTLE,
E. H. BENTON,
C. PERRY,
Committee.

GRAPES.

Best and greatest variety, F. S. Lawrence, Janesville	7 50
Second best, William Reid, North Prairie	5 00
Third best, Mrs. M. A. Lewis, Lake Mills	3 00
Best ten varieties, F. S. Lawrence, Janesville	7 50
Second best, William Reid, North Prairie	5 00
Third best, Mrs. M. A. Lewis, Lake Mills	3 00
Best five varieties, William Reid, North Prairie	5 00
Second best, F. S. Lawrence, Janesville	3 00
Third best, E. B. Thomas, Dodge's Corners	2 00
Best three varieties, William Reid, North Prairie	3 00
Second best, F. S. Lawrence, Janesville	2 00
Third best, E. B. Thomas, Dodge's Corners	1 00
Best two varieties, William Reid, North Prairie	3 00
Second best, Mrs. M. A. Lewis, Lake Mills	1 00

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Best single variety, Myers & Son, East Troy..... $ 1 00
Best 3 bunches Concord on one cane, William Reid, North Prairie..... 1 00
Best 3 bunches Delaware on one cane, E. B. Thomas, Dodge's Corners..... 1 00
Best single variety, quality to rule, E. B. Thomas, Dodge's Corners..... 5 00

CRABS.

Best and greatest variety named, William Reid, North Prairie..... 3 00
Second best, David Morgan, Wauwatosa..... 2 00
Third best, Geo. Jeffrey, Five-Mile-House..... 1 00
Best plate Hyslop, Geo. W. Ringrose, Wauwatosa..... 1 00
Best plate Transcendent, Geo. W. Ringrose, Wauwatosa..... 1 00

SWEEPSTAKES ON FRUIT.

Best collection fruits of all kinds, William Reid, North Prairie..... $7 50
Second best, J. Ozanne, Somers..... 5 00
Third best, Geo. Jeffrey, Five-Mile-House..... 3 00

GEO. P. PEFFER,
GEO. J. KELLOGG,
C. H. GREENMAN,
A. G. TUTTLE,
Committee.

Summer-fruits.

Best collection deciduous, nursery-grown trees—quality to rule — Gould's Nursery, Beaver Dam..... $10 00
Second best, Stickney, Baumbach & Gilbert, Wauwatosa..... 5 00
Best collection evergreens, Geo. J. Kellogg, Janesville..... 10 00
Second best, Stickney, Baumbach & Gilbert, Wauwatosa..... 5 00
Best collection fruit-trees, Gould's Nursery, Beaver Dam..... 10 00
Second best, Greenman, McGraw & Day, Whitewater..... 5 00
Best collection hardy flowering-shrubs, Gould's Nursery, Beaver Dam..... 3 00
Second best, Stickney, Baumbach & Gilbert, Wauwatosa..... 2 00
Best collection hardy, ornamental hedge, Stickney, Baumbach & Gilbert, Wauwatosa..... 3 00

WILLIAM REID,
D. HUNTLEY,
JAMES BARR,
Committee.

Flowers by professional cultivators.

Best floral design, Wm. Kitzrow, Milwaukee..... $10 00
Second best, A. Middlemass, Milwaukee..... 5 00
Best collection of cut flowers, Wm. Kitzrow, Milwaukee..... 5 00
Best basket of flowers, A. Middlemass, Milwaukee..... 3 00
Second best, Wm. Kitzrow..... 2 00
Best pyramidal bouquet, Wm. Kitzrow, Milwaukee..... 3 00
Best pair round bouquets, Wm. Kitzrow, Milwaukee..... 3 00
Second best, A. Middlemass, Milwaukee..... 2 00
Best pair flat bouquets, Wm. Kitzrow, Milwaukee..... 2 00
Best bouquet everlasting flowers, Wm. Kitzrow, Milwaukee..... 3 00
Best display dahlias, not more than twenty varieties, Wm. Kitzrow, Milwaukee..... 3 00
Best ten named dahlias, William Kitzrow, Milwaukee..... 2 00
Best display roses, William Kitzrow, Milwaukee..... 5 00
Best five named varieties of roses, William Kitzrow, Milwaukee..... 3 00
Best display verbenas, William Kitzrow, Milwaukee..... 3 00
Best ten named verbenas, William Kitzrow, Milwaukee..... 2 00

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Best show asters, in quality and variety, William Kitzrow, Milwaukee	$ 2 00
Best show petunias, William Kitzrow, Milwaukee	1 00
Best show gladiolas, H. G. Roberts, Janesville	1 00
Best show phlox drummondii, William Kitzrow, Milwaukee	1 00
Best show stocks, William Kitzrow, Milwaukee	1 00
Best show balsams, William Kitzrow, Milwaukee	1 00
Best show green-house plants (not more than 100), William Kitzrow, Milwaukee	10 00
Best 20 varieties green-house plants in bloom, William Kitzrow, Milwaukee	6 00
Best ten geraniums, William Kitzrow, Milwaukee	3 00
Best six fuchsias, William Kitzrow, Milwaukee	2 00
Best six carnations, William Kitzrow, Milwaukee	2 00
Best display of flowers raised by exhibitor, William Kitzrow, Milwaukee	10 00
Best display ornamental foliage plants (not over 15 varieties), William Kitzrow, Milwaukee	5 00

MRS. F. S. LAWRENCE,
DR. RISCH,
KATE PEFFER,
Committee.

Flowers by non-professional cultivators.

Best floral design, Kate Peffer, Pewaukee	$10 00
Best collection of cut-flowers, Emily T. Smith, Green Bay	5 00
Second best, Mrs. J. W. Park, Dodge's Corners	3 00
Third best, Theresa Karzke, Milwaukee	2 00
Best basket of flowers, Mrs. P. Vale, Milwaukee	3 00
Second best, Mrs. J. W. Park, Dodge's Corners	2 00
Best pyramidal bouquet, Mrs. P. Vale, Milwaukee	3 00
Second best, Kate Peffer, Pewaukee	2 00
Best pair round bouquets, Kate Peffer, Pewaukee	3 00
Second best, Theresa Karzke, Milwaukee	2 00
Best pair flat bouquets, Theresa Karzke, Milwaukee	2 00
Second best, Kate Peffer, Pewaukee	1 00
Best bouquet of everlasting flowers, S. B. Smith, Dodge's Corners	3 00
Best display dahlias, not more than 20 varieties, Kate Peffer, Pewaukee	3 00
Second best, Mrs. J. W. Park, Dodge's Corners	2 00
Best ten named dahlias, Kate Peffer, Pewaukee	3 00
Second best, Mrs. J. W. Parks, Dodge's Corners	2 00
Best ten named verbenas, Kate Peffer, Pewaukee	2 00
Best show seedling verbenas, Theresa Karzke, Milwaukee	2 00
Second best, Emily T. Smith, Green Bay	1 00
Best show asters, in quality and variety, John Dearsley, Wauwatosa	2 00
Second best, Emily T. Smith, Green Bay	1 00
Best perennial phlox, S. B. Smith, Dodge's Corners	1 00
Second best, Mrs. J. W. Park, Dodge's Corners	50
Best show pansies, Kate Peffer, Pewaukee	1 00
Second best, Mrs. C. C. Kingsley, Milwaukee	50
Best show petunias, Emily T. Smith, Green Bay	1 00
Second best, Mrs. J. W. Park, Dodge's Corners	50
Best show dianthuses (pink), Kate Peffer, Pewaukee	1 00
Second best, Mrs. C. C. Kingsley, Milwaukee	50
Best show gladiolas, Kate Peffer, Pewaukee	1 00
Second best, Mrs. C. C. Kingsley, Milwaukee	50
Best show stocks, Mrs. J. W. Park, Dodge's Corners	1 00
Best show balsams, Theresa Karzke, Milwaukee	1 00
Second best, Mrs. C. C. Kingsley, Milwaukee	50
Best show green-house plants (not over 100) H. W. Roby, Milwaukee	10 00
Best twenty varieties green-house plants in bloom, H. W. Roby, Milwaukee	6 00
Best six fuchsias, H. W. Roby, Milwaukee	2 00
Best display of flowers raised by exhibitor, Kate Peffer, Pewaukee	10 00
Second best, Mrs. J. W. Park, Dodge's Corners	5 00
Best show of ornamental foliage plants (not over 15 varieties), H. W. Roby, Milwaukee	3 00

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VICK'S SPECIAL PREMIUMS ON CUT-FLOWERS.

First premium, Emily T. Smith, Green Bay.....$20 00
Second premium, Kate Peffer, Pewaukee..... 15 00
Third premium, Theresa Karzke, Milwaukee..... 10 00
Fourth premium, Mrs. J. W. Park, Dodge's Corners..... 5 00

Dr. R. A. KOSS,
H. G. ROBERTS,
O. S. WILLEY,
Committee.

To the President, Secretary, and Officers of the Wisconsin State Agricultural Society:

GENTLEMEN: Having had charge of the floral division of the fruit and flower department of the last State Fair, I respectfully and earnestly recommend and request that James Vick, esq., of Rochester, N. Y., be awarded a suitable medal and diploma, in recognition of his liberality and generosity in contributing so largely and munificently toward the success of the fair, florally as well as pecuniarily.

I also recommend, that a diploma be awarded to Messrs. C. Heniecke & Co., of Milwaukee, for an unrivaled display of lawn, garden and house ornaments, in bronze, for use in floral decoration.

Respectfully,

H. W. ROBY,
Supt. floral division.

Flowers by professional non-commercial cultivators.

Best floral design, Mrs. Alexander Mitchell, Milwaukee.....$10 00
Best collection cut-flowers, Mrs. Alexander Mitchell, Milwaukee..... 5 00
Best show green-house plants (not more than 100), Mrs. Alexander Mitchell, Milwaukee..... 10 00
Best twenty varieties green-house plants, in bloom, Mrs. Alexander Mitchell, Milwaukee..... 10 00
Best ten geraniums, Mrs. Alexander Mitchell, Milwaukee..... 5 00
Best display of lawn, garden and house ornaments in bronze, for use in floral decorations, C. Heinecke & Co.....diploma.

O. S. WILLEY,
H. G. ROBERTS,
H. W. ROBY,
Committee.

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REPORTS OF LOCAL SOCIETIES.

BROWN COUNTY HORTICULTURAL SOCIETY.

This Association is in a fairly prosperous condition. Meetings were held during the winter once in two weeks, at which there were discussions upon fruit and fruit-growing and other subjects connected with horticulture.

President—J. M. Smith, Green Bay.
Secretary—W. Reynolds, Green Bay.

GRAND CHUTE HORTICULTURAL SOCIETY.

At the third annual meeting of this society, held at Appleton, the following officers were elected:

President—W. H. P. Bogan.
Treasurer—P. S. Bennett.
Secretary—D. Huntley.

The interest in fruit-culture, especially apples, is not as great as before so many trees were killed two years ago, still there are many who will reset the coming spring where, trees were killed. Many are going into the culture of the smaller fruits. In the raising of fine vegetables this county is equalled by few in the state; it was the banner county at the Oshkosh fair last fall.

Fruit-culture is really in its infancy, and success will be limited to the intelligent few. Whether Outagamie county will ever make fruit-growing a source of revenue is doubtful, to say the least; yet at our horticultural exhibitions we have very fine displays of apples, grapes and pears; though of the latter the Flemish Beauty is the only variety considered sufficiently hardly to pay for setting in any

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quantity. Of apples, Golden Russet, Fameuse, Duchess, Red Astrachan are extra hardy, the Perry is coming in favor as the trees get age. The Tallman Sweet is killing badly by bark bursting, and is not held in as high esteem as formerly. The Tetofsky is growing in favor as it begins to fruit; it has proved itself perfectly hardy, thus far. The Ben Davis was set largely at first, but has killed badly and many are shy of trying it any further. We have not been very successful with the Pewaukee and Walbridge, but shall try a few more to give further trial. We wish to try the Wealthy, as we see it is highly recommended in Minnesota; we are also anxious to experiment with all new varieties recommended as hardy so as to enlarge the list suitable to this locality.

LEMONWEIR VALLEY HORTICULTURAL SOCIETY.

This society was organized February 3, 1874. Eleven meetings have been held for horticultural addresses, essays and discussions. These meetings have gradually increased in interest, as well as attendance, and we now find it almost impossible to close them till very late hours, on account of the interest taken in the discussions.

Three special exhibitions have been held. The first one was at New Lisbon, June 23d. The *Juneau County Argus*, in an editorial, says: "The interior of the building was beautifully ornamented with appropriate emblems, entwined with plants and flowers of every description, an arch wreath, the motto: 'Make home beautiful,' tastefully arranged in floral letters across the room, while the varieties of roses, bouquets, &c., exhibited, far surpassed any display of the kind we have ever seen or witnessed in this section of country."

The second exhibition was held at Tomah, August 22d, and the local paper thus speaks of it: "The meeting was a grand success. Lady friends presented a profusion of flowers, both wild and cultivated, which were artistically arranged, presenting a most delightful appearance. Others brought fruit; much of it beautifully fair and large; this, with a few choice vegetables, constituted the show. But it was the intellectual part that gave the greatest pleasure. The address of Rev. Mr. Haigh was a rare treat, brim-full of the

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choicest sentiment, sparkling with wit, and holding a delighted audience in blissful forgetfulness of the lapse of time. After this came the award of premiums, &c."

The third special fair was held at Tomah, in connection with the Eastern Monroe County Agricultural Society; this society taking charge of the horticultural department, and increasing the interest in this part of the exhibition materially.

The annual exhibition was held at New Lisbon, September 11, and 12, and was in all respects a grand success. Nothing occurred to render it otherwise than all the most sanguine friends could have anticipated or desired. The large and commodious hall was profusely decorated with pictures, photographs and designs, and neatly arranged for a convenient display of the large variety of fruits, flowers and vegetables that crowded the tables, and drew from one and all expressions of surprise and gratification, demonstrating most fully that our valley is capable, under the skilled hand of industry, of producing in perfection all those productions of a northern climate that please the eye and gratify the palate. Every available space in the hall was occupied, and that to, by articles not inferior to any exhibition of a similar kind in the west. The show of fruit was large. A table one hundred and sixty-eight feet in length was closely packed with such specimens that visitors did not make use of the usual and old stereotyped phrase, "I have better at home." Robert Northcutt, of Fountain, C. E. Lake, of Oakdale, John White, of Fountain, C. W. Potter, of Mauston, C. W. Kellogg, of Tomah, and J. P. Sheldon, of New Lisbon, were the heavy competitors for the highest prize offered on apples. Mrs. E. Spaulding, of Fountain, placed on the table forty varieties of seedlings, some very fine specimens. The show of pears, plums and grapes were good. Judge Grote, of Mauston, presented twenty-seven varieties of grapes, all well ripened and in fine condition. The tables for vegetables were all crowded with fine specimens; C. W. Kellogg, of Tomah, having thirty-six varieties, and many others showing fine collections, and single specimens surprisingly large and fair.

The premiums on canned-fruits, jellies, etc., were warmly contested by Mrs. J. M. Boylan and Mrs. Goodhue, of New Lisbon, Mrs. C. W. Potter and Mrs. M. A. White, of Mauston, and others; all having many different varieties, and of excellent quality. Mrs. E. C. Sage, placed on exhibition a very large and choice

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collection of green-house shrubbery and plants, as did Mrs. N. Colver, Mrs. Goodhue and Mrs. Nettlebeck. The floral display was beautiful indeed, fully demonstrating the cultured taste of our lady friends, and their determination to make the "wilderness bud and blossom like the rose." Mrs. Burhans, Mrs. Winsor, Mrs. Evans, Mrs. Nettleback and Mrs. Carpenter had large and fine collections of flowers and bouquets. Mrs. M. L. Clark exhibiting one hundred and fifty-six varieties of cut-flowers. The artistic department was crowded with articles of merit, showing superior workmanship, as well as refined taste in the exhibitors. Mrs. L. C. Wescott, Mrs. C. D. Curtiss, Mrs. A. O. Wright, Mrs. Gill, Mr. J. F. Ramsey, Dr. DeVilliers, and many others, contributed articles for this department. The exhibition closed with a determination to make each succeeding one a grander display; and each went his way joyful and expectant.

The society has laid the foundation for a good, standard horticultural library, consisting of about thirty volumes, which will be steadily increased from time to time. There is now under consideration, and will come up for final action at the March meeting of the society, the propriety of erecting and maintaining a green-house and experimental garden. The financial condition of the society is good—having now on hand $98.17.

The society is incorporated, and its office of business located at New Lisbon, Juneau County. The officers for the ensuing year are—

President.—C. S. Whittier, Oakdale.
Vice-President.—H. Allen, Tomah.
Secretary.—M. L. Clark, New Lisbon.
Treasurer.—C. W. Fosbinder, Mauston.
Trustees.—C. H. Grote, of Mauston; E. L. Bostwick, of Tomah; and J. P. Sheldon, of New Lisbon.

About one hundred and eighty volumes of horticultural and agricultural works have been received and distributed to members of the society. Also many seeds, cuttings, and cions.

The future prospect of horticulture in this valley is brightening. The damaging effects of the winter of 1872-73 are passing away, and a general revival of horticulture is observed on all sides. Those who were the most discouraged by the destruction of their fruit trees are more determined than ever to grow their own fruit, and

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many trees, vines, and plants will be put into the ground the coming spring. A more careful selection of hardy trees, trees adapted to our climate and soil, is being made.

The apple crop was light, though many orchards, favorably situated and well cared for, produced good crops and of good quality.

Pears were a failure owing to the "fire blight."

The cherry harvest was the best ever gathered here. We may yet succeed in growing this fruit if we give good winter protection to the trees by surrounding them with evergreens.

Plums, good where not destroyed by the curculio. A coop of chickens under the tree has proved a safe and sure remedy.

The raspberry, for the first time within ten years, proved a failure. The tops were dead in the spring but sprouted up from the root, and are now doing well.

Strawberries came through the winter in fine condition, but the berry failed to ripen.

The grape is doing well, having entirely recovered from the dry winter of 1872-73. The crop was light owing to late spring frost, which killed many of the fruit buds. The Concord and Delaware are mostly grown here. There are several vineyards producing good, paying crops, and several more will be planted out in the spring.

MADISON HORTICULTURAL SOCIETY.

The following officers were elected for the year 1874:

President—Wm. T. Leitch.

Vice-Presidents—John Gripper, Geo. E. Morrow.

Corresponding Secretary—Mrs. H. M. Lewis.

Recording Secretary—N. F. Lund.

Treasurer—Timothy Brown.

TRANSACTIONS FOR 1874.—Frequent meetings for discussion were held in the early part of the year, at some of which interesting papers and addresses were presented by members and others. Two exhibitions of plants, flowers, fruits and vegetables were given during the season, in June and August. Both were most successful in the number and variety of articles exhibited; the taste shown in

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their arrangement, and in the attendance. Seventeen new members were received during the year, and we mark it as one of the most successful years in the history of the society.

SAUK COUNTY HORTICULTURAL SOCIETY.

The citizens of Sauk county, Wisconsin, met March 13, 1875, for the purpose of organizing a horticultural society in the village of Baraboo, Sauk county, Wisconsin. The meeting was called to order by A. G. Tuttle; J. N. Savage acting as secretary, *pro tem.* After accepting the report of the committee on constitution and by-laws, they were adopted.

The society then proceeded to elect the following officers for the ensuing year:

President—S. W. Grubb, Baraboo.
Vice-President—John Rooney, Freedom.
Recording Secretary—J. N. Savage, Baraboo.
Corresponding Secretary—Wm. Toole, Excelsior.
Treasurer—D. E. Palmer, Fairfield.
Executive Committee—John Dickie, jr., H. H. Howlett, A. M. Petteys, A. C. Tuttle, C. Hirschinger.

Committee of Observation.

J. W. Wood, Baraboo.	H. Barlow, Delton.
S. J. Seymour, Dellona.	A. M. Petteys, Excelsior.
D. Hackett, Fairfield.	Geo. Morgans, Franklin.
Chas. Hirschinger, Freedom.	L. Pierson, Greenfield.
Ferdinand Keller, Honey Creek.	C. C. Kuntz, Troy.
	Mrs. B. G. Paddock, Ironton.
Thos. Wilcox, La Valle.	H. M. Jones, Merrimac.
Dr. Conger, Prairie du Sac.	Joseph Shoards, Reedsburg.
Alex. Stewart, Spring Green.	S. Montrose, Winfield.
L. Twist, Westfield.	John Brown, Washington.
Dore Johnson, Bear Creek.	K. E. Stone, Sumpter.

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WINNEBAGO COUNTY HORTICULTURAL SOCIETY.

The object of this Association is the dissemination of such horticultural knowledge as may be specially applicable to the localities of this portion of the state, by holding meetings for discussion, and comparing experiences on various methods of culture, and for ascertaining such facts as may be made conducive to the advancement of the general ends of horticulture. The society distributes seeds, plants, trees, &c.

The society returns its thanks to the State Horticultural Society for fifty copies of its transactions for the year 1874, which were duly distributed, and which is regarded as a work of the greatest practical value.

The officers of the association for the present year, are:

President—John O'Brien, Nekimi.

Vice-Presidents—J. R. Paddleford, Omro, Isaac Miles, Oshkosh.

Treasurer—R. D. Torrey, Oshkosh.

Corresponding Secretary—E. S. Hayden, Oshkosh.

Recording Secretary—R. J. Harney, Oshkosh.

Executive Committee—G. A. Randall, Isaac Miles, L. Whitemarsh, E. Chase, James Sanderson, and the President and Recording Secretary, *ex-officio*.

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TRANSACTIONS

OF THE WISCONSIN

STATE HORTICULTURAL SOCIETY,

AT THE

Annual Meeting held in Madison, February 2, 3, and 4, 1875.

The annual meeting was called to order in the State Agricultural Rooms, at 8 o'clock, Tuesday Evening, February 2, by the President, J. S. Stickney, Wauwatosa, who at once delivered the annual address, given in full on pages 9 to 15 of this volume.

At the conclusion of this address there was an extended discussion of which the following is a very full summary:

Mr. Benton made inquiries as to insect foes to the evergreens, and called up Mr. Anderson.

Mr. Anderson said that for a number of years a small green worm, with stripes on the sides, had made havoc with his evergreens, and destroyed the foliage, eating off the terminal buds. The worm was very active, and would drop at the least jar. He found it difficult to kill them, and as they seemed to be on the increase, he feared he should lose the trees infested. When about an inch long, they went into chrysalis state on the tree, and in about two weeks came out a small, brown miller.

President Stickney recommended the use of white hellebore. He had found it very effective in destroying all kinds of insect foes. Dust the plants with it when moist with dew or rain. He had seen similar worms on Balsams.

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Mr. Anderson spoke of hedges as a fence; had tried Honey Locust, but had neglected it, and it had grown too large. Could it be lopped or splashed?

President Stickney had little confidence in the hedge for fences; had seen miles of them in Illinois, but they took up too much land and were too expensive; little dependence could be placed upon them for protection to crops. It requires six years or more to get a hedge to turn stock; regarded the Barberry as most suitable; did not take so much land; never suffered from cold; had not seen any injury to other crops from it; it was some subject to blight but this was not fatal to it.

Mr. Peffer had tried the Honey Locust; it grew too large, and on "splashing" it, the tops all died, but sprouted up from below; if cut back near the ground the first two or three years, it will thicken up and make a very good fence, but needs a good deal of cutting back. He had seen a very good Hawthorn hedge, but in deep snow mice had girdled and destroyed it.

Mr. Woodard, of Marengo, Illinois, said the Osage Orange had served well for hedges in northern Illinois, where not neglected; needs to be cut back thoroughly at first, and to be pruned every year; if too high growth is allowed, it took up too much ground; was mostly used for outside and line fences, and was good protection when well cared for. He suggested the native thorn as perhaps suitable; had seen good hedges of it.

President Stickney gave as objections to it, that it was destroyed by mice; eaten by cattle; often killed out by severe cold; suffered by fire-blight, and took two years to get plants from seed.

Mr. Smith said that at the east the Honey Locust was a forest tree, and he could not recall having seen a single hedge of it. He questioned its hardiness.

Mr. Daniels said that two-thirds of the Honey Locusts in Waushara county had winter-killed.

Mr. Kellogg thought the Honey Locust was too rapid a grower; needed a good deal of cutting back at first, and pruning two or three times in each season; he had two other shrubs more suitable for the purpose, the Barberry and Hawthorn. The Barberry required less pruning; should be cut back the first year close to the ground.

Mr. Tuttle had seen no hedges, either east or west, which an-

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swered a good purpose for protection against stock. Had little faith in them for this purpose. They take too much land. White Willow was sometimes used, but unless the field was large, little land would be left for cultivation.

Mr. Plumb thought that we had gone altogether astray on the subject of hedges, trying to pattern after those in Europe in form and treatment. He regarded the Barberry as perhaps the most suitable in the character of its growth and other respects, as it needed less pruning; but it requires a long time, ten or twelve years, to make good fence; the Buckthorn will not bear the requisite cutting back; as a rule we cannot summer prune our plants, without injuring their vitality. Honey Locust can be used for this purpose; when it gets six, eight or ten feet high, cut off and let it thicken up; it is a gross feeder and will require a good deal of cutting back; he had a poor opinion of hedges for fences, but favored them as screens or wind-breaks and for ornamental purposes. He regarded it as an important branch of our business, as a society, to encourage their use for these purposes; they will add much to the beauty of our homes, and be very profitable in keeping out cold winds from our gardens and fields. Evergreens are very suitable for this; perhaps the Arbor Vitæ is best adapted for ornamental use, as it is more easily handled and pruned, and its natural growth is beautiful in form. For screens, would use Lombardy Poplar, setting the slips eight inches apart in a single row, thinning out and cutting off as they grow up. The refuse can be used for summer wood, which will be quite an item, at the present price of fuel; White Willow and Soft Maple can be used for the same purpose; will not make good fences, perhaps, but will be good screens.

Mr. Benton recommended Red Cedar as reliable for this purpose; it grows rapidly and can be pruned to any form desired; is very compact, and is a very fine ornament and screen, serving the purpose as well as a board fence.

Mr. Kellogg said if Red Cedar is used, get them from the north; those brought from the south were not acclimated and would fail.

Pres. Stickney had seen very fine screens of White Pine, trimmed back to a suitable form. He was surprised to see it. We do not yet realize how evergreens will bear the knife if used at the right time; that is, while they are making new growth. Before the terminal buds are formed, cut off the ends and new shoots are sent

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out in compact form; neglecting to prune until an undesirable form is developed results in great loss.

Mr. Plumb said he did not know of a time when we could not prune evergreens safely; had done it at various seasons of the year, in June and December, and could not see that cutting back had any more injurious effect at one time than another; would not hesitate to cut back to the desired form, whether the growth was new or old.

Mr. Jackson suggested the use of crab trees for the purpose of wind-breaks and screens; would be profitable for fruit also. He had Hyslop crab trees that had been broken down, but sent up strong, hardy shoots from the ground and made a very compact growth. They had borne abundantly, and the fruit was sold at a good price; he thought the Hyslop was but little cultivated, but with him it was more hardy and productive than the Transcendent; on account of color and keeping qualities, it would bring more in the Chicago market.

Mr. Tuttle had shipped both to Chicago and had realized the highest price for the Hyslop; said he believed both varieties came from New York, but they were little known in the east. Eastern people cannot raise fruit as formerly, and even now are dependent on the west for it. These crabs are good, but we are not dependent on them for fruit, even in the northern part of this state or Minnesota.

Mr. Kellogg said these crabs are hardy and ornamental, but liable to be injured, as screens, by mice and blight. He regarded the Hyslop as much inferior in quality to the Transcendent and others.

Mr. Benton had been troubled some with blight, but by seeding down the land, had in a measure obviated it.

Mr. Harney, of Oshkosh, regarded the Hyslop as much inferior to the Transcendent in quality, and it was no hardier. The Transcendent did not keep as well, but was excellent for preserves. He thought the Society should cultivate the public taste; they should not recommend anything on account of the dollars and cents in it, so much as for its merit.

Mr. Daniels had made a practice of drying the Transcendent; had found it very valuable for this purpose; when common dried apple was worth ten cents, he should regard them as worth twelve and a half.

Mr. Plumb first knew the Hyslop in 1848; it was grown in Mr.

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Gifford's nursery in Milwaukee in 1846, and was named after Mr. Thomas Hyslop; quality not good; we have many others much superior to it in beauty and hardiness, and infinitely better in quality.

Mr. Woodard said we are apt to judge by too limited experience. The past season he had been connected with the Crystal Lake Pickleing and Packing Establishment, and they regard none as superior to the Hyslop for pickles; would pay the highest price for it, as there was money in it. Soulard crabs were worth three prices for jellies; were much better than the Transcendent; they had found the native wild crab also superior for jelly.

Mr. Daniels said they were raising peaches in Waushara county for profit; thought it could be done extensively, and wanted light as to best kinds and manner of cultivation; thought they might use dwarf varieties, and set where they could be easily protected.

Mr. Peffer said they could be grafted on plum stock, and so dwarfed; had raised them for years.

In response to an inquiry from Mr. Olds as to the varieties of apples used in the commercial orchards mentioned in the President's address and what kinds he would set, President Stickney said they were Ben Davis, Winesap and Rawle's Janet, and he had never seen finer fruit or more productive orchards. These varieties were adapted to Illinois and Iowa, not suitable for our state. He thought we had too many kinds. Many of our orchards are unproductive and next to worthless. He would set for market purposes, Duchess, Walbridge, Haas and Plumb's Cider. Different localities require different varieties; go to any orchard in the vicinity and select the kinds that are most productive there, and set those.

Being called upon, Mr. Tuttle gave Fameuse, Cider, Walbridge and Pewaukee. With these varieties no one can fail to get good crops of fruit. He had tried Winesap, but could get more from one Fameuse tree than from all his Winesaps—twelve or fifteen trees. Our climate is especially adapted to raising Fameuse. Apples of this kind are so much larger and fairer with us as not to be recognized by eastern fruit-growers.

Mr. Smith said the fruit-growers about Green Bay regarded Fameuse as decidedly superior to all others.

Mr. Daniels called attention to the Fall Orange as an excellent variety with them. It does well and will keep. He had some specimens with him.

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WEDNESDAY MORNING'S SESSION.

At the opening of the morning session there was some informal discussion on dividing the state into Fruit-Districts. This was favored by E. H. Benton, among others. Pres. Stickney favored the plan adopted in Iowa, After remarks by J. C. Plumb and others, the question was left for action at another time.

J. C. Plumb read the paper on Horticulture Progress and Prospects, given on pages 21–26.

Following the reading of this paper there was some discussion concerning the exhibition of Wisconsin fruits at the American Pomological Society meeting in Chicago, in September, 1875. There was a general sentiment in favor of this, but no formal action was taken.

E. Wilcox, of Trempealeau, read the paper on Hardy Stocks given on pages 26–31; also gave illustrations of his views by young trees exhibited from his nursery. This paper was followed by an annimated discussion.

President Stickney expressed his gratification and astonishment at the proofs of success given by the trees exhibited, and thought the plan of grafting on crab roots worthy of further trial. In his experience he has found a tendency to dwarf the trees and a failure to secure good union, quite common.

L. Woodard, of Marengo, Ill., said, in his experience common apple roots did not die if they had sufficient moisture. He believed drouth was the cause of root-killing. While it may do to graft on crab roots, he could not think of throwing away the common apple roots.

A. G. Tuttle, of Baraboo, said he had several thousand apple trees in his nursery grafted on Transcendent roots. Not one in fifty of these had made a good union. Some varieties will do well grafted on crab roots. He had never lost a tree in the orchard by root-killing. Where this does occur protection is the remedy. Trees on sandy soils are not subject to root-killing. A large proportion of the trees killed are killed in the top. A hardy tree is one that will withstand injury and recover when injured, making healthy growth afterward.

J. C. Plumb said he had had much experience in this matter. The top changes the character of the roots on which it is grafted

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or budded. He preferred to use good, short roots; plant the trees deep, and thus secure roots from the cion as soon as possible. Hyslop and Soulard are among the poorest crabs for top-grafting on.

Mr. Wilcox agreed that the top ultimately controlled the roots, but he wanted the trunk better than the common kinds; thought it well to bud in the small limbs.

Mr. Tuttle stated that with him trees top-grafted on the Yellow Crab did better than those top-worked on the Transcendent. In his view, we must get hardier varieties; better reject three-fourths of the varieties we now have. There was much to hope from new seedlings.

E. W. Daniels said he had not had much success in top-working on the Transcendent. Ben Davis had done well on Hyslop.

C. H. Greenman said he had top-grafted 2,000 Transcendents and had never sold a tree, as the union was imperfect; in many cases there was a large bunch where grafted.

Mr. Wilcox said budding was vastly better than grafting.

A short paper by J. T. Hawes, of Fitchburg, recommending boxing trees with pieces of board to prevent injury from mice and rabbits, was read. (See pp. 93 and 94.)

G. P. Peffer thought tar paper or strychnine cheaper.

The Secretary read a paper on Breeding Trees for Hardiness, by C. S. Abbot, of Prairie du Sac (given pp. 78–83), after which, the Society adjourned for dinner.

WEDNESDAY AFTERNOON SESSION.

On re-assembling, the Society proceeded to the election of officers for the ensuing year, which resulted in the choice of the following:

President—A. G. TUTTLE, of Baraboo.
Vice President—J. M. SMITH, of Green Bay.
Recording Secretary—F. W. CASE, of Madison.
Corresponding Secretary—E. H. BENTON, of Le Roy.
Treasurer—G. A. MASON, of Madison.

On motion of Mr. Wilcox, G. J. Kellogg was made Superintendent of the Horticultural Department of the next State Fair.

On motion of Mr. Tuttle, the sum of $100 was appropriated to the Recording Secretary for 1874.

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The treasurer's report was received and read as follows:

To the Wisconsin State Horticultural Society:

Your treasurer submits the following report of receipts and disbursements for the fiscal year ending February 3, 1875:

1874.	RECEIPTS.		
	Balance on hand at last report.....	.....	$445 08
February...	Received from Sec'y Morrow, for members' dues.	$56 00	
	Received from Chas. Gibbs, for annual dues.....	1 00	
			57 00
			502 08
	DISBURSEMENTS.		
February...	Per voucher No. 70, Atwood & Culver.....	$6 00	
	Per voucher No. 71, Atwood & Culver.....	2 50	
	Per voucher No. 72, Secretary Morrow.....	6 00	
	Per voucher No. 73, Park & Co.....	1 70	
	Per voucher No. 74, Secretary Morrow.....	8 00	
	Per voucher No. 75, Secretary Morrow.....	100 00	
	Per voucher No. 76, Secretary Morrow.....	16 00	
	Per voucher No. 76½, Secretary Morrow.....	7 50	
	Total	147 70	
	Cash on hand.....	354 38	
			502 08

Respectfully submitted,

GEORGE A. MASON, *Treasurer.*

MADISON, *February* 3, 1875.

The report was referred to the executive committee.

E. A. Benton, of Le Roy, read the paper on Picking, Packing and Preserving Fruit, given in full elsewhere. (pp. 40–45.)

B. B. Olds, of Clinton, expressed his general agreement. The greatest difficulty he found was in keeping the apples cool in the Fall.

Mr. Tuttle placed the great difficulty in keeping fruit in not picking early enough and in poor handling. Our apples over mature; should be picked as soon as ripe; will ripen more in one week on the tree than in two months, when properly cared for after picking; had picked the Strawberry, a fall apple, much earlier than usual on account of exposure to loss by pilferers, and packed them in barrels with other apples; he found a barrel of them in the winter which

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had been overlooked, still in good condition; also discovered a half bushel in April that had kept well; does not recommend picking before maturity, as it injures the flavor; should be kept in a cool place during the fall, up to cold weather, then the cellar is the best place. Large fruit-growers would find it profitable to erect a cheap building for storage; have it open in cool weather, and closed while warm and damp. He was building an ice house with a room underneath it for the purpose of keeping all kinds of fruit.

Mr. Daniels uses his ice house for fall storage of fruit, finds it answers a good purpose.

Mr. Kellogg had seen the Duchess kept very late by being packed in green hardwood sawdust.

Mr. Smith said apples may be kept while frozen — if cold be not too severe; if thawed out slowly in a dark cellar, little injury results.

C. H. Greenman, of Milton, in a brief and partly humorous paper, discussed Horticulture as a means of Obtaining Wealth. Given on papes 46–48.

Mr. Smith did not agree to the estimate put on the yield of strawberries; one hundred bushel per acre may be an average crop east, but the strawberry is adapted to a cold climate and should do better here; would call it a small crop.

Mr. Kellogg has raised 230 bushels from an acre, and again has not got enough for family use. Last year the drouth and chinch bug destroyed the whole crop.

Mr. Greenman had gathered 200 bushels from an acre, but did not think the average yield was over 40 bushels.

B. F. Adams, of Madison, read the paper on Strawberry Experiments given elsewhere.

In the discussion which followed, J. M. Smith, of Green Bay, said he made drains in the fall to carry water off the beds. Ice ought not to be allowed upon them. He had raised strawberries for twenty years. His practice was to make the bed rich and mellow; set the plants in the spring, in rows two feet apart, and twelve or fourteen inches in the row. The first season he raised another crop between the rows; cultivated thoroughly, and kept the weeds all out; cut the runners off the first season, except enough for new plants; used ashes, if they were to be had, and fine manure. The second season the crop was usually large; then he manured again; allowed

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the runners to grow; and after once hoeing, pulled out the weeds by hand. Does not try to get over two crops from one bed. Mulchs with pine leaves; allowing them to stay on until danger from frost is passed, then removes them from the rows, but returns them afterwards to protect the fruit from dirt. The strawberry needs water, and it is often necessary to water to save the crop. Since 1860, he had not failed to get a good crop, except one year, and then he failed because of a late frost. He had gathered as high as 250 bushels from an acre, and more from parts of acres. His aim was 400 bushels per acre. He had found that good care and cultivation did pay.

Mr. Clark gave his recent experience with strawberries; he had set out for a big crop. Had complied with all the conditions supposed to be necessary to suceess. The plants did well up to the time when the fruit had nearly reached its mature size; then the berries withered and dried up, the plants remaining comparatively healthy. The yield was less quarts than there should have been bushels. He wanted to know the cause. The majority thought it resulted from drouth and too heavy mulching. This tends to draw the fine rootlets to the surface, where they suffer from heat and drouth when nourishment is most needed to perfect the fruit. The opinion was that mulching should be light.

C. H. Hambright, of Beaver Dam, presented a recommendation for legislative action, giving tree-sellers a lien on the property of the purchaser. This matter was somewhat discussed and referred to a committee consisting of Judge Geo. W. Cate, E. H. Benton and C. H. Hambright, which committee subsequeutly reported it back to the convention for consideration without any action on their part. After further discussion, the motion to recommend legislation was lost.

Sec'y Field, of the State Agricultural Society reported from the Executive Committee of that Society, that the usual appropriation of $800 for premiums in the Horticultural Department at the State Fair would be made, with the understanding that not more than $800 be offered in such premiums; and that the appropriation of $100, asked for by the committee of the Horticultural Society, to aid in making a show of fruit, at the American Pomological Society meeting, could not be granted.

On motion this whole matter was referred to President Stickney,

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who, after a conference with the executive committee of the State Agricultural Society, made the following report:

Your committee to confer with the Agricultural Society, report: That the Agricultural Society have voted $800 to be used in paying the awards of $800 of premiums to be offered by this Society. And any balance not called for by such awards to be paid into our treasury: In consideration whereof, it is understood that this society assumes the responsibility and expense of properly representing our State at the American Pomological Convention in September next.

J. S. STICKNEY,
Committee.

The paper, published in full elsewhere, on Fruit Culture in Sheboygan Co., Wis., was read by the Secretary.

J. M. Smith, of Green Bay, read an interesting report, as a member of the Committee of Observation, given elsewhere.

The Society then adjourned until Thursday morning.

THURSDAY MORNING'S SESSION.

The Society met, with President elect, A. G. Tuttle, in the chair.

The Executive Committee reported that the Treasurer's report had been compared with the vouchers and found correct.

On motion of J. S. Stickney, the Secretary was instructed to invest $200 of the Society's funds in Government bonds.

The paper on How and When to Plant an Orchard, by Geo. W. Putnam, was read by the Secretary:

President Tuttle highly commended the directions given in the paper.

R. J. Harney, of Oshkosh, said the discussions and facts showed that there is great discouragement as to fruit-culture. Some localities are much more subject to unfavorable influences than are others. Location is almost as important as hardy varieties. We have no varieties of apples that will withstand some unfavorable circumstances. Drouth is the worst enemy of fruit trees in Wisconsin. In Winnebago, the Fameuse, English Golden Russet and Red Astrachan are considered hardy. Grapes succeed very finely.

S. B. Loomis, of Lone Rock, said location was more important than selection of varieties. Even in New York, a difference of half a mile makes the difference between success and failure.

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Wm. Finlayson, of Mazomanie, said we might sit long, think long, and write long without finding anything better on the subject than Mr. Putnam's paper. He advised protecting trunks of trees with straw.

J. C. Plumb spoke of the importance of protection to trunks of trees, and referred to the plan of planting evergreens in the orchard.

S. B. Loomis said the evergreens would steal from the fruit-trees. The fruit-trees should have all the ground.

O. S. Willey said he had grown enthusiastic over this evergreen question, but had decided that it will not do to try to grow two crops in the orchard. In the Michigan peach region, where other crops are grown among the trees the yellows are prevalent. The best orchards were those in which no other crops were grown.

E. H. Benton said we must protect the trunks of trees on the southwest. He had set trees leaning to the southwest, and would continue to do so; and would also stake them to hold them in that position.

L. Woodard, Marengo, Ill., said it was well to plant evergreens about the orchard in belts, but not close to the trees.

Mr. Harney referred to the pear orchard of Mr. Roe, of Oshkosh. He has one and one-half acres on hard red-clay soil; dug deep drains, then spaded the ground one and one-half feet deep throughout. Flemish Beauty trees came through the winter all right, and bore a heavy crop of fruit. Another orchard of fifty pear trees has borne well. The success was attributed to thorough and good culture, with good and deep drainage. Selecting proper varieties, right exposure, culture and soil will insure success.

E. Wilcox said the best orchard of which he knew was in clover.

Mr. Clark says his practice is to protect with evergreens cut from the woods and leaned against the body. In Lemonweir Valley, orchards that were well cultivated and well mulched were not injured by the severe winter of 1872–3. Had remarked that orchards on sloping ground did better than those on a level.

Mr. Peffer had protected his trees for years by setting up a board on the southwest side, and found it effectual. The best orchard he had seen stood on a northern slope.

Gen. N. F. Lund of Madison, read the paper on Small Fruit Culture in the Northwest, given on pages 84–89.

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J. M. Smith, of Green Bay, read the paper on Progress in the Market Garden, given on pages 52–59.

G. J. Kellogg, of Janesville, read a brief paper on Pear Culture published in full.

E. W. Daniels said Henry Floyd, of Berlin, Wis., had finally failed in pear culture, after much success. Blight had been the trouble.

President Tuttle said he discouraged attempting to grow pears on a large scale; but we can grow some, Blight is the most serious obstacle. He found none on Flemish Beauty trees at Baraboo, until within a few years. The best informed men of the country know nothing as to the cause of this blight, have no explanation to give of its cause, and suggest no satisfactory remedy.

M. L. Clark, of New Lisbon, is planting 400 pear trees and is confident of success. Has had no trouble with blight as yet.

G. J. Kellogg said seedling pears on the roadside near him showed blight as they grew older.

J. W. Parks, of Dodge's Corners, said he had had 1,100 pear trees but had finally failed. When the trees commenced bearing they blighted. Trees in sod did better, but gradually died off. He has not now more than 200 trees living. The Flemish Beauty had paid cost in the crops it had borne.

G. P. Peffer said the Flemish Beauty paid well with him. For twelve years the trees showed no blight. When this came on, it destroyed many trees. The older trees are nearly all dead. He has a tree grafted on White Thorn in 1851, which is living and bearing.

M. L. Clark said he has used salt on his pear trees with good results, using a pint or less to each young tree. He thinks it does not stop growth.

A. G. Tuttle said we cannot expect to grow pear trees that will be very long lived. He has had no difficulty with blight until after the trees have borne. Early Bergamot has not blighted with him.

S. B. Loomis said pear trees at Ilion, N. Y., were planted on ground filled up several feet with refuse from the armory and foundry. The trees have continued to do well for many years.

J. W. Park said his neighbor, Mr. Thomas, thinks the application of salt to pear trees arrested blight.

R. J. Harney, of Oshkosh, said he had known iron to have had a fine effect on pear trees.

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J. C. Plumb said the only way out of the trouble was, as the blight is the chief trouble, to change the manner of growth of the trees. They should be grown in poor soils, grown slowly and with the wood thoroughly matured.

L. Woodard thought the cause of the blight was atmospheric.

President Tuttle said we found severe blight on the oaks in the forest. The cause with them cannot be excessive growth.

G. P. Peffer said he found blight on oaks, only where the winds blew the snow and leaves away. He agreed with Mr. Woodard that the cause of the blight is atmospheric—hot winds.

J. C. Plumb insisted that the cause of oak trees dying and pear trees dying were quite distinct. In case of the oaks the roots will be found dead when the tops show signs of dying. He believed the cause of this was lack of moisture.

The paper on Insects in Flower and Plant Culture, by Mrs. I. H. Williams, of Madison, was read. (See pp. 94–97.)

G. P. Peffer, referring to this paper, said Paris Green diluted, by mixing one table spoonful with a pailful of water, and applied to the rose bushes would destroy rose slugs.

Mrs. H. M. Lewis, of Madison, read a paper on Early Wild Flowers of Wisconsin, given on pages 97—102.

G. J. Kellogg moved that the thanks of the Society be tendered Mrs. Williams and Mrs. Lewis for their excellent papers, and that they, with Mrs. J. M. Smith, of Green Bay, who had been present throughout the meeting, be elected honorary members. The motion was unanimously adopted.

Gen. N. F. Lund, of Madison, exhibits dried grapes, or raisins, of Rogers No. 15. He hung the grapes, at first, in a dry room where there was no fire. After some time he removed them to a warm room. He thinks that properly drying such varieties as experience directs will enable us to have good raisins. So far as he had used these, he prefers them to the ordinary raisin. The skin cooks perfectly tender. He would not suggest drying any but the surplus crop.

In answer to an inquiry concerning the Croton grape, Mr. Greenman gave an unfavorable report as to its growth.

Gen. Lund had two vines of this variety and was much pleased with it. The fruit with him is very fine. He would not recommend it for general cultivation, but for all who will give it good

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care, he does not know of any better variety. It ripens about the same time as the Delaware.

Mr. Greenman said it generally mildewed.

Mr. Harney, of Oshkosh, reported the Walter doing well there. The fruit is of good quality, foliage stands well.

G. P. Peffer, of Pewaukee, thinks the Martha a poor fruit; it mildews and he has not had good clusters. White Muscatine does well with him; vines set 16 years have not mildewed.

J. M. Smith, of Green Bay, thinks the Walter has been too highly extolled, some of its friends have abandoned its cultivation.

M. L. Clark, of New Lisbon, says he can grow grapes at $20 per ton, and can get paying prices, although not high prices. At present he cannot sell Delawares for more than Concords.

President Stickney said he knew of a market for 300 or 400 tons of grapes at $40 a ton. The place is in families all over the country and the price is to be paid in labor and care for the grapes.

C. H. Greenman had marketed the Janesville grape two weeks before the Concord. The quality of the Janesville is not fine, but it is very early and will keep long.

M. L. Clark keeps Concords well by wrapping each bunch in paper; keeping them cool till cold weather; then keeping them in the cellar.

J. C. Plumb said there was no question that we could have plenty of Janesvilles and Concords, but we wanted something better. He asked if we could graft any of the finer grapes on the Concord, and whether any of the white grapes were reliable in Wisconsin.

Mr. Tuttle said he had five acres in Concords but has never been able to keep them after they are fully ripe. Delawares sell for twice as much as Concords. The Janesville is the most promising of the early grapes. Growing leading varieties of grapes is more certain than growing any common farm crop. The Adirondack failed with him. Ionia is not generally reliable.

C. H. Greenman, in answer to inquiry, said he had mulched three acres of grapes with straw, four to six inches deep, leaving this on during the year. The experiment was entirely successful. The grapes ripened evenly; vines went into winter quarters in good shape.

G. J. Kellogg and Gen. Lund united in the statement that if

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mulching was commenced it must be continued, as mulching made the roots grow near the surface.

As to winter protection Gen. Lund said marsh hay is good, but good soil, not clay, is also good. Whatever is used, soil should be put on top in any event, The vines should be kept dry; the soil being well drained.

Mr. Harney, of Oshkosh, said mulching a vineyard was a dangerous practice. In the end it would fail. The vines should be cultivated stirring the soil to the depth of four to six inches, thus keeping the roots down. The ground should be kept loose about the vines. He had covered his vines with earth for several years, for winter protection.

M. L. Clark thought it mulching was bad for grapes it must also be bad for other fruit.

E. W. Daniels, Auroraville, submitted a statement as to a seedling apple exhibited by him, found in the northern part of Waupaca county. The tree seemed to be hardy; it had almost alone survived the extreme cold and ill usage to which it had been exposed. The apple resembles the Greasy Pippin in size, form and color; is said to be a long keeper, up to April and May; the flesh is hard and of very fair quality.

A report was received from the committee appointed for the purpose of deciding on a plan for districting the state for observations, which was adopted. Subsequently President Stickney presented some instructions to observers on this plan which were adopted by the society and the secretary was instructed to have 100 copies of these instructions and the report of the committee printed for distribution to parties interested.

This was subsequently done as follows:

REPORT OF COMMITTEE.

At a recent meeting of the Wisconsin State Horticultural Society, a committee, appointed to take into consideration the suggestions of ex-President Stickney with reference to districting the state for the purpose of observation to determine the adaptability of various kinds of fruit to different localities, and to collect such other information as would tend to develope the horticultural interests of the state, reccommended its division into twelve districts, with a committee of observation for the year, corresponding in number, one

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for each district. The following division and list of observers were reported by the committee and approved by the society:

1*st District*—Kenosha, Racine, Milwaukee, Waukesha, Ozaukee and Washington counties; H. M. Thompson, of St. Francis.

2*d District*—Walworth, Rock, Green, Dane, La Fayette, Iowa and Grant counties; J. C. Plumb, of Milton.

3*d District*—Jefferson, Dodge, Columbia and Fond du Lac counties; E. H. Benton, Le Roy.

4*th District*—Sauk, Richland, Crawford and Vernon counties; S. B. Loomis, of Lone Rock.

5*th District*—Green Lake, Waushara, Marquette and Winnebago counties; E. W. Daniels, of Auroraville.

6*th District*—Adams, Juneau and Monroe counties; M. L. Clark, of New Lisbon.

7*th District*—Outagamie, Waupaca and Shawano counties; D. Huntley, of Appleton.

8*th District*—Portage and Wood counties, and the valley of the Upper Wisconsin; B. F. Felch, of Amherst.

9*th District*—La Crosse, Trempealeau, Jackson and Buffalo counties, and the valleys of the St. Croix and Chippewa River; E. Wilcox, of Trempealeau.

10*th District*—Lake Superior region; ——— ———.

11*th District*—Sheboygan, Calumet and Manitowoc counties; Samuel Rounseville, of Sheboygan Falls,

12*th District*—Brown, Kewaunee, Door and Oconto counties; J. M. Smith, of Green Bay.

E. H. BENTON.
J. C. PLUMB.

INSTRUCTIONS TO OBSERVERS.

It is earnestly hoped that the gentlemen designated will make special efforts to collect all the facts and statistics possible, relating to horticultural matters in their respective districts, and present a full report thereof at the annual meeting of the Society in February next. To give these reports greater practical value and efficiency it was deemed best to have a uniformity, to some extent, and a few points were suggested by members of the Society towards which the observations should be specially directed, leaving each observer free to note also other subjects, that seemed to them important and of general interest. The points suggested were: Amount of tree

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planting this season as compared with former years, and what success has attended the same; what degree of interest is taken in fruit-raising; statistics as to the amount of fruit production; varieties most successful, both in tree and yield of fruit; the extent of small-fruit culture, with statistics as to quantity and varieties; amount of blight the present season, and any facts which tend to prove or controvert the fungus theory of its origin; effect of the severe winter on trees and fruit; varieties most affected; and any facts in relation to soil, culture or exposure, which may tend to lessen or increase the amount of injury; efforts made in ornamental or timber planting of trees, and the success attending the same; natural advantages or disadvantages of different localities in soil, exposure or protection; any facts as to the topography of the country, character of the soil, local peculiarities, etc., which would make a change in the present districts desirable, in order to facilitate the collection of facts and statistics. When possible, state actual value in figures, in giving the extent and cost of production.

The Committee of Observation are also requested to make selections of such fruit as will worthily represent the horticultural products of their respective districts and the state, at the convention to be held by the American Pomological Society at Chicago, September 8th, 9th, and 10th, next. The State Society appointed Messrs. J. C. Plumb, of Milton, A. G. Tuttle, of Baraboo, and N. F. Lund, of Madison, as a general committee to superintend the collection and exhibition of fruit at the convention, who will furnish all needed information on the subject.

The collection of information above mentioned, and the selection of fruit for the exhibition is left entirely in the hands of the committee of observation of the respective districts, and all correspondence with reference to the same should be directed to them.

A. G. TUTTLE, *President.*

F. W. CASE, *Secretary.*

MADISON, WIS., February 22, 1875.

G. J. Kellogg, of Janesville, presented a weather record for 20 years past, and G. P. Peffer, of Pewaukee, a record since 1861.

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M. L. Clark presented a report of the Lemonwier Valley Horticultural Society.

A report from the Committee on Premium-List for the Horticultural Department of the State Fair was received.

At the evening service, the first paper read was that by G. P. Peffer, on New, Western Fruits, Grown From Seeds. Following this the consideration of the fruit lists was commenced. President Tuttle advised recommending varieties with much caution. It was better to do too little than too much in this direction.

In *Strawberries,* Green Prolific was taken from the list for general cultivation and added to the list for trial. Peak's Emperor, Reed's Late Pine and Victoria were stricken from the list. Kentucky was added for trial.

In *Pears,* Clapp's Favorite was added to the list for trial.

In *Plums,* Duane's Purple was recommended for trial. Mr. Tuttle said the Miner plum was stung by the curculio with him, but this did not prevent the plums from ripening. M. Anderson said this variety did well with him. L. Woodward, of Marengo, Ill., said they had not borne so young with him as they did at Galena. E. Daniels, of Auroraville, said they cracked with him. G. J. Kellogg reported them not bearing well with him.

The Society adjourned until morning.

FRIDAY MORNING SESSION.

At the opening of the session there was some discussion as to the exhibition of fruits at the American Pomological Society meeting, and J. C. Plumb, A. G. Tuttle and N. F. Lund were appointed a committee to receive fruits and superintend its exhibition. An appropriation of one hundred dollars was made from the funds of the society, to defray the necessary expenses therefor. On motion of J. M. Smith the committee of observation were appointed as a committee to collect fruit for this exhibition.

Mr. Plumb of the committee on nomenclature presented an interesting paper on that subject, which will be found elsewhere.

The consideration of the fruit list being resumed it was decided to make no changes in the list of *Raspberries.*

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In *Grapes*, on motion of Gen. Lund Roger's No. 3 was added to the list for trial. President Tuttle spoke very favorably of this variety. The quality of the fruit was good, vine hardy and the fruit early. It should be planted where it can have a free circulation of air.

After some further miscellaneous discussion, the Society adjourned until the next annual meeting.

MEETING FOR DISCUSSION AT MILWAUKEE.

A meeting for discussion was held at Spencer's College, Milwaukee, on the evening of September 8. The attendance was quite large, and the exercises were of much interest.

President Stickney opened the meeting with a brief address. He stated that it was with reluctance that he appeared before them; but he, in common with the other members of the society, felt the need of comfort and consolation in their severe losses; hundred of trees and plants had been destroyed by the extreme cold; but we all know the remedy, viz.: to plant two trees for every one that died; we were no worse off than other sections of the country; he had just returned from the east, where he saw orchards that had been destroyed by the canker-worm. He witnessed there, as well as here, great negligence in the care of the trees, and thought that much of the injury was chargeable to this, and that much of it could be prevented by better cultivation and proper selection of varieties. He thought that the failure of our large trees should stimulate the raising of small fruits.

Mr. A. G. Tuttle thought the failure of our trees was largely due to the carelessness of fruit-growers, and to the planting of varieties we know nothing about; he saw no reason to despond; failure in one season proves nothing; it takes several years to test trees. He looked with much confidence to the Russian apples for hardier varieties; of these he had a hundred varieties; his orchard was not a money-paying orchard; it was rather a burlesque on what such an orchard should be, yet he was not disheartened.

James Brainerd, of Oshkosh, gave an encouraging account of his success in raising small fruits.

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E. H. Benton thought that our fruit-growers were working against natural laws in raising apples, and would like to have the subject fully discussed. Experience had demonstrated that our winters killed fruit-trees, without regard to variety, on hard and unprotected ground; he thought mulching would be very beneficial, and if properly mulched our trees would not winter-kill.

In answer to a question, Mr. Tuttle thought that deep planting was by far the best; some roots run directly down, while others spread out on every side, but the collar of a tree always remained stationary.

Mr. Benton was in favor of setting the tree so as to have the roots as near the surface as possible, and have them well covered.

Mr. G. J. Kellogg had found, by actual experience, that deep setting would not preserve the trees.

Prof. Daniells, of the State University, said many arguments could be brought on both sides in favor of deep and shallow setting. In many things the fruit-grower comes in conflict with nature, but yet we were making progress; the society had done a great deal for the advancement of fruit-culture.

Mr. J. C. Plumb endorsed the views of Mr. Benton; he would have the roots near the surface, but they must be preserved at any expense; mulching in this climate is necessary. The orchard should not be used as a pasture; compacting the soil must be avoided. The reason why our trees did not bear better the present season was lack of vitality; the trees had not recovered yet from the severity of the winter.

Mr. Tuttle regarded seeding down the orchard as injurious. Various instances were cited to show that the benefits of deep or shallow planting depended on the soil, location. &c.

The thanks of the society were returned to Mr. Spencer for the use of the hall, and the meeting adjourned.

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MISCELLANEOUS PAPERS.

APPLE-GROWING IN NORTHERN WISCONSIN.

BY ROBERT CHAPPELL.

[Read before the Brown County Horticultural Society.]

In considering this subject heretofore, it has been our custom to present the merits of well-known, eastern varieties, taking it for granted that among them, a few at least, could be found well fitted for the peculiarities of our soil and climate. Now I wish to present for consideration two questions: Have we not taken too much for granted? and if so, what are we going to do about it?

To my mind "the logic of events" has already answered the first question. Tens of thousands of the most noted varieties of eastern apples have been planted in Northern Wisconsin during the last twenty years, and where are they now? Complete or partial failure has been the rule, and apparent success even, a very rare exception. So general is the admission of this fact that many have abandoned the idea of any further planting, or are contenting themselves with varieties of the Siberian Crab, which, except for special purposes, are of little value, and in fact are hardly worthy to be called apples at all. We have no right to say that these failures are all due to neglect or improper methods. It is true, that in many instances, the young plantations have not had a fair chance; but in a majority of cases these experiments have been made by people born and reared among the orchards of New England, New York and Ohio, who have given their young trees the same kind of culture, and as good as is customary in those states. And these people have not rested with one trial. When their first trials failed, they "possessed their souls" with what patience they could, got other varieties which they hoped might better answer the purpose, and subjected them to somewhat different treatment, but generally with

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a similar result. All the known good varieties have in this way been tested again and again. How long is it necessary to persevere in this waste of patience, time and money before the question may be considered settled? Is not a period of twenty-five years enough?

Some of our horticulturists are encouraging hopeful expectations of new varieties from Russia, it appears to me without sufficient reason. We must remember that the southern portion of Russia, which is the fruitful portion, although a trifle further north than the place where we stand, is not necessarily colder than here, or as cold. It is in fact between the same parallels of latitude as France, Switzerland, Austria and Northern Italy, the home of many varieties of fruit which will not endure our climate at all. The most noted of our Russian apples are Red Astrachan, Duchess of Oldenburg, Alexander and Tetofsky. The first two have lately lost their distinctive character of "iron-clad." They were certainly originated in Southern Russia. The Alexander is a superb fruit in appearance only—its place is the kitchen. Tetofsky is now on trial here, and whether it succeeds or not, is not a first-rate fruit. The only Canada apple which holds a prominent place among us. is the Fameuse or Snow apple; and this is the only apple of all the superior varieties that have been tested here in which I have any confidence. But one apple will not answer our purpose even if it could be safely depended on.

Now the apple is pre-eminently the fruit of temperate climates. Maine, New Hampshire, Vermont, Northern and Central New York, and Canada produce in abundance the best apples in the world; all of which places have a climate as rigorous as our own; and the idea that we *cannot* have good orchards and good apples is incredible. We have tried a great variety of trees, from a great variety of places and nurseries. We have given them every variety of culture, good, bad and indifferent. We have planted upon clay, upon sand, upon loams, upon gravel, upon the hills, upon the plains and in the valleys. We have planted in the spring and in the fall. We have planted deep and shallow. We have set them perpendicular and at an angle, leaning to the south. We have cut off the tap roots, and have also left them on. We have pruned in the spring, summer and winter; root pruned, top pruned and left unpruned. We have sworn at different times by low heads and high heads. We have treated them with manure and without it. We have plowed our

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orchards and left them in grass. We have protected their trunks from the freezing and thawing of early spring, and we have left them to face it out in their own way. We have washed them with soap-suds and solutions of sal-soda and potash. We have painted them with whitewash and with unsavory compounds that shall be nameless. We have plugged them with sulphur and camphor and calomel and other potent drugs. We have tried top-grafting, crown-grafting and root-grafting. We have tried standards, small dwarfs, medium dwarfs, and dwarfs upon their own roots. We have done everything, I believe, but one, and the result has been wonderfully uniform; failure, disappointment, and disgust. The one thing that we have not tried in any systematic way, is the production of new varieties, that shall be in one sense natural to the northwest.

It may be stated as a rule, with but few exceptions, that plants and fruits succeed best in the places of their origin. A notable instance of this is found in the Rheum Palmatum or Turkish Rhubarb, which when brought to France and most carefully cultivated, has proved worthless. In applying this rule to the apple, we must not take it in its largest sense, for it is not a native fruit, although it here reaches its greatest perfection. What is meant is, that any good variety of apple will, as a rule, succeed best in the locality where it originates. Thus Swaar, Spitzenburg and Newtown Pippin originated in Eastern, and the Northern Spy in Western New York, the Baldwin, Benoni, and Roxbury Russet in Massachusetts, the Belleflower in Pennsylvania or New Jersey, and Peck's Pleasant and the Seeknofurther in Connecticut. The list of apples famous in the localities where they originated and that do not succeed as well in any other, might be largely extended. All the above-named famous apples have been tried in this region, and found wanting.

Now, if it is true that we are in the natural climatic range of the apple; that there is no obvious unfitness in our soil; that the good varieties brought from a distance have in most cases failed; and that fruits are best and hardiest in localities where they originate, can we not see pretty plainly what course we ought to pursue? Is it not plain that the horticulturists of the northwest ought to attempt the production of new varieties, better fitted for the conditions of the country? Children of the soil, that shall be at home in the peculiarities of our climate?

There are two methods of producing new varieties of fruit, though

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I believe both may be ultimately referred to the same principle; first, by artificial cross-breeding, and second, by successive reproduction. It is about seventy-five years since Thomas Andrew Knight, President of the London Horticultural Society, introduced the practice of cross-breeding in fruit, by which means he produced many new and valuable varieties. Cross-breeding is simply the mixing of two varieties of the same species of fruit, by means of the blossoms. The blossoms of the apple are of the form sometimes called perfect, that is, each individual blossom contains within itself all the organs necessary to reproduction; so that the blossom of a Spitzenburg in an isolated position will always produce a Spitzenburg and nothing else: but, if by any means it becomes fertilized by pollen from another variety of apple, although the fruit will be a Spitzenburg, its seeds, when planted, will produce a new fruit more or less resembling both its parents. And herein is the whole theory of cross-breeding. I may here say that cross-breeding is practiced only between varieties of the same species. The apple and pear, though sometimes so much alike, are of different species, hence, no one has yet succeeded in crossing them. In rare instances crosses are made between species nearly alike; the result is then properly called a hybrid or mule. Hybrids are not generally reproductive, the race ending with the first generation. The process is simple, though it requires delicate handling. The pistil is the central, raised portion of the flower, at the base of which is the embryo fruit. The summit of the pistil is called the stigma. The outer circumference of the face of the flower, is occupied by the stamens, which terminate in the small capsules or anthers which contain the fertilizing dust, or pollen. The use of the pollen is to fertilize the young fruit at the base of the pistil. Before the flower has fully matured, these stamens are, with a pair of scissors, cut entirely away; then, from a flower on another tree, at a time when it is mature, (that is dry and powdery,) pollen is collected by a small, fine bush and deposited on the stigma of the flower from which the stamens have been removed, and the work is done. This must be done at the right time, that is, when the pollen is dry and fine, and the stigma is moist enough to retain it. This practice is in great use by florists, for producing new and beautiful varieties of flowers.

The method of originating new varieties by *successive re-production,* if not strictly a natural process, is less artificial than that of

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cross-breeding. A fruit tree strictly in its natural state, will, as a rule, reproduce itself continually by seed without variation. But when subjected to new conditions, and careful cultivation, its seeds are more likely to produce a fruit varying somewhat from its natural character. The greatest difficulty is in producing the first improved generation. Where it has once moved out of its natural state, it is then fairly in the way of improvement. Each successive re-planting of the seed is likely to produce better and still better results, till the fruit has reached the boundary of its capacity for improvement. Now although it is true that the best apples in the United States have been originated by the re-planting of seed, yet, for want of the proper application of the true principle, the best results have been accidental. It is a singular declaration to make, and yet I believe it is true, that the more carefully the seeds have been selected, the more unsatisfactory have been the results. Granting that the capacity for improvement in any given variety of fruit is limited, and that according to the theory of Van Mons, this limit may be reached in a few generations, we have a very plain reason for this fact; for when a fruit has arrived at perfection (there being an inherent tendency to return towards its original state) not one of the varieties produced from its seeds will be better than itself, but all will probably be much worse. Now when sowing for fruit it has always been customary to select seed from the best fruit available; in short, from varieties that have already arrived at the end of their march to perfection. Hence, in latter days, not one seedling apple in a thousand has proved to be of really first-rate quality. In strong confirmation of this theory, we may note the declaration of Duhamel, that for fifty years he had been in the habit of planting seeds of the best varieties of table pears in France, without producing a single, valuable variety. It may also be remembered that the results of the first plantings of the New England Colonists were very unsatisfactory; so much so that some concluded that the country was not adapted to the production of the best apples; but in fact they had been too careful in the selection of their seed; they had brought to this country seeds of varieties that had reached perfection already.

Now this is no fanciful theory. It has been tested in a most thorough and systematic way. I have already mentioned the name of Van Mons. This gentleman, a resident of Louvain, in Belgium,

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is a man of scientific attainments, and an ardent pomologist. He devoted the greater part of his life to the cultivation and amelioration of fruits; chiefly upon the plan of successive reproduction from seed. His experiments were conducted on a large scale, were extended through many years, and were in my mind entirely conclusive. Belgium is said to be the paradise of pears, and to the improvement of this fruit he gave most attention. He experimented, however, with apples and stone-fruit. It is stated by Downing that in 1823 the nursery of Dr. Van Mons contained two thousand seedlings of merit. One result of his experiments was, to convince him that seed from an old tree was more likely to produce inferior fruit than seed from a young tree of the same variety. His manner of producing was this: Gathering his fruit from a young seedling-tree, not a wild one, but one that is already in a state of variation, he plants them in a seed-bed. When they have grown to a sufficient size to enable him to form some idea of their character and constitution, he selects the most promising seedlings, takes them up and cuts off the tap-roots. He then plants them in nursery-rows, only a few feet distant from each other. Here he leaves them, with an occasional heading-in of the longest branches, till they produce their first fruit. From the most promising specimens of fruit, he takes the seeds and plants again, subjecting the young trees to the same treatment, until fruit is again produced. The process is again and again repeated, each generation producing better fruit, and coming earlier into bearing than its immediate predecessor, till in the fourth or fifth generation the varieties produced are nearly all of fine quality.

It was found by him, that different *species* of fruit required different periods of time to arrive at what he called perfection. He thought that, as a rule, pears would require five successive generations, apples four, peaches, plums and other stone fruit but three. It should be mentioned that Van Mons thought that the fruit for this process should be gathered before full maturity, and allowed to rot before removing the seeds; believing that this would have a tendency to subdue somewhat the original coarseness of the tree. He says of himself: "I have found this art to consist in regenerating in a distinct line of descent, and as rapidly as possible, an improving variety, taking care that there shall be no interval between the generations. To sow, to re-sow, to sow again, to sow perpetually, in

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short to do nothing but sow, is the practice to be pursued, and which cannot be departed from, and in short, this is the whole secret of the art I have employed."

Whatever may be thought of his theory and practice, it is certain that Van Mons originated many varieties of superb fruit. In Downing's list of pears are found over twenty varieties produced by him. Though Mr. Downing evidently favors the system of cross-breeding, because it is more scientific and produces its results in shorter time, he uses with regard to it these hopeful and encouraging words: "The American gardener will easily perceive from what we have stated a great advantage placed in his hands at the present time, for the amelioration of fruits by this system. He will see, that as most of our American varieties of fruit are the result of repeated sowings, more or less constantly repeated, he has before him almost every day, a part of the ameliorating process in progress, to which Dr. Van Mons, beginning *de novo,* was obliged to devote his whole life. * * * * * Our own experience leads us to believe that he will scarcely have to go beyond *two* generations to obtain fine fruit."

Now, I am thoroughly convinced that the idea of further experiments with the old varieties of apples ought to be abandoned by us, I believe that if we are to have any successful orchard-culture it must be with new varieties, originated in our own climate; and so believing, it seems to me to be the duty of the horticultural societies and individuals to set about the production of them at once. I have endeavored to describe with sufficient minuteness the two ways by which it may be done: First, by cross-breeding; second, by repeated planting. The first may be too difficult for general use; but any one who knows enough to select and plant seeds, is master of the second process. To those of us who have reached the time of gray heads and beards, the idea of waiting so long for the perfection of the fruit of our planting, may seem discouraging. But can we not sometimes act from motives above the level of selfish gratification? If our forefathers had not planted, where would now be the fruit? We owe it to our children to provide for them at least as good fruit as our fathers provided for us. Let us pay our debts, if we do no more. Moreover, every true gardener experiences much more satisfaction in directing and watching the process of the producing good fruit, than he does in eating it.

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But after all, the process need not be so tedious as it seems, for we have Downing's authority for expecting that fine fruit can, with us, be produced by two plantings, and a fortunate selection of seed may yield superior fruit in the first generation. Besides, there are other methods of hastening the maturity of specimen fruit that we have not now time to discuss. And whoever shall be so lucky as to originate a first rate, hardy variety of apples, will not only be a public benefactor, but will put money in his purse, and plenty of it. For myself, I have finished my experiments with eastern varieties of apples, but to those who wish still further "to see the folly of it," I would say, plant seeds notwithstanding, and let the two experiments progress side by side—the one need not hinder the other.

I wish to urge, as briefly as possible, one other reason for seed-sowing. Time will not allow me to argue the question of the superior vitality of seedlings. I take it for granted that a seedling tree is always, under the same conditions, more hardy than a grafted one.

I also assert, that for this region, a hardy stem is the first requisite for a fruit-tree; because, most of our apple trees, at least, die from diseases of the stem, chiefly, in my opinion, in consequence of sudden freezing and thawing in early spring. Now if these things are so, there is encouragement for those to plant once, who are not willing to make successive plantings. To such an one, I would say, select your seed according to the rules already set forth. Sow them in a good seed-bed. When they have had one year's growth, take them up carefully and cut off the tap-root. Reject all that are not strong and thrifty. Plant in nursery rows and keep them as carefully cultivated as if they were cabbages. When large enough to set in the orchard, reject all but the best. Do not waste ground, labor and time on an unpromising tree. At the first fruiting, if the fruit is not worth cultivating, graft in the top with some hardy variety that suits you better; and you have a grafted tree, made strong in its weakest part, the stem. At the first fruiting of such an orchard, some really good fruit would be secured and the poorest of of it would probably be better than the crabs with which we are now filling the vacant spaces in our dying orchards.

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WHAT FLOWERS SHALL WE PLANT?

BY MRS. I. H. WILLIAMS, MADISON.

Surrounded, as we are in the winter season, by snow and ice, bleak, blustering winds striving to penetrate every crack, as if curious of our cosy firesides, it seems as if smiling spring was so far from us that it were useless to prepare for her coming; but we have been promised "seed-time and harvest," and they will be ours again. So we will take this time to talk and think over past successes and failures, and prepare anew.

Of course we will have our Annuals, Sweet Alyssium, Candy-Tuft, Phlox, Mignonette, the modest Browallia, and Nemophila, which thrives best under the protecting shade of some wide-spreading tree. The new varieties of Tropæolums are showy and handsome; the effect of one blossom in a vase, with a spray of white and a scarlet Geranium, is very fine. The new Double-Balsams are perfect, and the white, almost as beautiful as a Rose. The Convolvulus Minor must not be neglected on account of its old-fashioned relative, the Morning-Glory, which a place should be provided for, if only to please the children. It thrives well in sun or shade, and grows nicely for basket or vase.

Do not forget the Sweet Pea; if you wish to screen or divide some portion of your garden, make a hedge of it by setting brush closely together, as for the edible pea. Centranthus Albus is a neat, pretty flower, beautiful for bouquets. Have plenty of white flowers, they being shy bloomers, one needs two at least of white-blooming plants for every one of color. We must not attempt too much; a few well-grown plants are more to be desired than a garden filled with indifferent specimens.

If one has a large lawn, a few beds cut in it can be made very effective; but to have this, the lawn-mower must be kept often in use, for the pleasing effect would be lost if the grass were allowed to grow too tall. Caladium Esculentum is a good plant for such purposes, but in planting be sure and make a ditch around them, for they need abundance of water, and if the bed is rounding, the water will run off, and when the hot, dry, August days come, the

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red spider will claim them, for their own. One bed filled with Coleus Verschaffeltii, or Achyranthus, and another with any of the varieties of white-leaf plants, will be quite attractive.

We must have the Bouvardias, red and white; give plenty of sunshine but mulch them well, for I think their roots grow near the upper soil, for a hot day seems to make them droop, unless protected. Those who are fortunate enough to have a north side to their garden should certainly have a shady bed. Great taste can be displayed in the arrangement of such Ferns, both the Exotic and Wild. Give them peaty earth and leaf mould. Pansies, Fuchsias, Calceolarias, Smilax, Farfugium, Panicum Varigatum, Torenia Asiatica and all shade-loving plants thus grown, will repay for your love and care. There will always be spaces found for vines, so be sure you remember them. They are to the garden what tasteful drapery is to the windows of a room; they give airiness and grace, without them stiffness and monotony would reign, giving an air of prim precision. The variety is so great that all tastes and purses can be suited, from the old Gourd, Madeira vine and Maurandya to the lovely, graceful Smilax.

Last, but not least, we must have a rose bed. Roses are so much handsomer planted in masses than scattered singly on the lawn or singly around the garden, they look better and can be better cared for. In having the bed made, let it be dug two spades deep; good loamy soil and plenty of decayed manure is all that is needed. If the soil is of a dry, sandy nature the roses will afford little pleasure, for during our dry summers they will become the prey of the red spider, and the bushes will be unsightly objects. Give them a sunny, airy spot, on the open lawn. Before planting, understand well the habits of each rose; the taller growing, for the center, and the lesser in size around; the dark rose for the center, graduate the shades, reserving the white or lightest for the outside.

For a continuous display of bloom, the Teas, Bourbons or China roses should be used, but to have them constantly in bloom, give an abundance of water during the dry spell. When cutting the blossoms, cut back to where you see promise of a fine leaf-bud. Of the BOURBONS, Hermosa, pink; Sou de Malmaison, flesh color; Geo. Peabody, crimson. CHINA, Mad. Bosauquet, pale flesh; Ducher, white; Agrippina and Louis Phillipe, crimson. TEAS, Bon Silene, edep rose; Devoniensis, yellow; Glorie d'Dijon, yellow; Homer, rosy

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salmon; Mad. Russel, blush; Isabella Sprunt, canary color; Bella, white. These will all require protection during the winter, either wrapping with straw, or still better, lay them down and cover with sod. Roses have their failings, and to many seem difficult of cultivation. Few, if any, will undertake the care of plants unless they have genuine love for them, such will bestow care and much labor, without feeling it to be a trouble. Any work in which one's heart is, must be a success.

BEST MEANS FOR PROMOTION OF HORTICULTURE.

BY C. S. WHITTIER.

[A prize essay read before the Lemonwier Horticultural Society.]

The best means for the promotion of horticulture are those that will the most effectually remove the obstacles in its way; for when these are removed the cultivated mind turns to this most delightful vocation as naturally and as surely as the fish turns its head up stream, and as the growing plant seeks the sunlight.

One obstacle is a lack of taste for the business. This may be overcome by familiar lectures, setting forth its attractive features; by a periodical display of fruits and flowers, and by the growth of plants in public and conspicuous places.

Another obstacle is a lack of knowledge of the different varieties of fruits and flowers, and the most approved methods of culture. This knowledge may be gained and promulgated by means of discussions; a system of correspondence; the public press; public libraries and reading-rooms, and by an experimental garden and green-house. A great obstacle is the lack of money that people are willing to invest. This may be overcome by proving that the business is profitable; for money always seeks profitable investment and is easily found where the inducements are sufficient.

Another great obstacle is the labor that is necessary in taking care of house-plants during the cold season, and while they are not in bloom and not wanted. The remedy for this is in having a green-house and storage-room for plants, at some convenient and accessible point within the valley, where plants may be sent by rail or

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otherwise, and placed in charge of some competent person who has the means of taking care of them properly, and who will then return them:

To illustrate the way in which these remarks may be put in practice and made useful, we will suppose that the Lemonweir Valley Horticultural Society is incorporated and so well organized as to be able to transact any proper business, as readily and as legally as any other corporation. That it has a place called home, located in one of the villages of the valley, at or near the depot of one or more of the railroad lines; that they own a piece of ground at this home, sufficient for an experimental garden, and have upon it, at the depot, a building, two stories high, with a basement under it; the upper story to be used for a society-room, library and office; the lower story for a green-house, and the basement for a furnace. At this place the society keeps in their employ some competent person, to take care of the grounds, buildings and library, see to the plants under their care, try such experiments in the green-house or upon the open grounds as the society may see fit to direct, and in general, do the work of the society. The library should be a circulating one, free to all the members of the society; the green-house to be used principally as a storage house for the plants of the members of the society. The meetings of the society should be held, as now, in various places, and the lectures, essays, discussions, exhibitions of fruits and flowers and premiums, should be conducted in the usual manner and made as public as possible.

With the society reconstructed in this way, all who can attend its meetings will receive a direct benefit. Those who cannot attend, will, by reading the reports, be able to get the substance of the lectures, essays, &c.; learn the conclusions arrived at by the discussions, the experiments tried and their results; receive seeds, cuttings and circulars obtained by the corresponding secretary, or otherwise, for the society; keep posted in regard to new varieties of fruits and flowers, their success or failure, and the manner of treating them, and have the full benefit of the library, for the books can be sent and returned by mail or otherwise.

All members of the society who cultivate house-plants can have the pleasure of their flowers at home while in bloom, and they can save the labor of caring for them at other times. They can be

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relieved of the almost hopeless task of getting a lot of house-plants through one of our cold winters in a common dwelling house.

An establishment like this, located at a railroad station, and properly cared for, would be "a thing of beauty and a constant joy;" it would be to the traveler like a fertile spot in this great western desert, a flower upon the Alps, or a light in the window at home when the storm king reigns. It would be to horticulture its "alma mater;" to the fruit-grower, his source of knowledge; to the Lemonweir Valley, its beautiful child of promise, and its pride.

It would be a conspicuous and attractive advertisement of the good taste and enterprise of our young society, and by means of the ever flowing tide of travel that is constantly passing through our state, the knowledge, the admiration, and the love of horticulture would be constantly spreading and deepening, until the little wave of thought and feeling that is now starting in our valley would, with its concentric circles, move on, wave after wave, until its influence is felt upon the farthest shores of civilized life.

PROFITS AND PLEASURES OF EXCURSIONS TO THE WOODS.

BY MRS. H. M. LEWIS.

[Read before the Lemonweir Valley Horticultural Society, at New Lisbon.]

Let us, this glorious morning, go out into the sweet, balmy air, where the "whole world is vibrating with joy, sweet with beauty, tuneful with happy sound," and forget dull care for a whole day. Let us seek refreshment for soul and body; feed our starving souls with living truths from Nature, that feast ever spread before us by Him, who is its maker. Too many of us are spending our lives in the outward adorning of the body, forgetting and ignoring all thought about the adornment of the soul; stitching strength, nerves, health, and even life itself, into our fine fabrics; and before our allotted time in life is half spent, we are broken down with life's infirmities and cares, with little or no inclination for any thing like recreation or amusement. To-day we will take a respite from all care, and go to the woods, in quest of wild plants

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for home planting—where already the lovely Hepatica, Anemone, Violets and other early spring flowers have bloomed since the snow left us.

After breakfast, the party begin to assemble, and father is soon here with the carriage or light wagon; baskets, boxes, and children are safely stowed away. Our party, numbering from ten to twenty, is reported ready to move, and we begin our tramp in true English style. As we proceed, we see on every side a succession of beautiful and varied forms, making field, wood, hill, and lowland sources of great interest and pleasure. We are filled with astonishment at the wonderful wealth summer has lavished upon us, and feel a longing regret that our growing season is so short—only about ten weeks—while England has sixteen.

The search has now begun in earnest; all are eagerly at work. Some are getting collections of mosses and ferns for ferneries indoors as well as out; others are traversing the marshes and water's edge for water-growing plants, but we will take a little of everything that is beautiful that comes to hand. Mother says, "be sure to lift them carefully, with plenty of earth." Baskets and boxes are filling rapidly; some of the boys have bags of moss upon their shoulders. Will has some roots of water-cresses that he says "are going home to grow in water; they will be so nice to eat with lobsters all the summer." He has but little sympathy with the plant-gatherers, and delights, boy-fashion, in teasing his sisters by bringing them bits of twigs, sticks, chips, etc., which really adds interest to the sport, as they indignantly drive him away.

As we pass in review the masses of blue and white Lupines, scarlet Painted Cup, and bright pink Phlox, Marie exclaims "if the great Linnæus could have viewed this scene, he would have fallen upon his knees, and given thanks to God for a sight so beautiful." Jennie must have a specimen of every flower for her herbarium, and Charlie considers no sacrifice too great to obtain it, even at the expense of torn clothes, scratched hands, or wet feet, but in his eye Jennie is the sweetest flower among them all. In after years, when they have made a home of their own, the sight of those dried wild flowers, reviewed by the fireside will carry them back to those bright happy days when the heart was young.

Many amusing incidents are constantly transpiring, for "plant hunting is a sociable employment." Merry laughter rings and

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echoes through the woods. Let us quicken our steps to join the happy party. Some of them are fording the stream in preference to crossing the bridge and grandfather is among them. We look admiringly on, remarking, what a lovely picture, when suddenly the vigorous shouts and kicks of grandfather bring all to his side, where we behold a bloodsucker on his foot; he protests that he was'nt a bit frightened, but we think him mistaken. Can we ever forget that scene?

Our sharpened appetites, after a time admonish us that it is time for dinner, coffee is soon boiling, table cloth spread, and dinner eaten with a hearty relish, and dyspepsia, for one day forgotten. After dinner is cleared away and dishes packed comes the after dinner rest, and talk, the shawls and blankets are brought into requisition to sit, or recline upon, and as the professor brings forth his botanical treasures to analyze and discourse upon, he is heard to murmur to himself.

> "That man immured in cities still retains
> His inborn, inextinguishable thirst
> Of rural scenes."

He begins by telling us the botanical names of the flowers. John says, "I never can learn those ugly Latin names;" he tells him if he truly loves them, the hard names will fix themselves upon the memory, and that these names are recognized by all civilized nations on the globe; that this is the only way to reduce the "immense chaos of botanical knowledge" to system and order; as the number of species already known exceeds 90.000. He reveals wonderful new beauties in the commonest flower and plant, as we view them under his lens. He also tells us that to the bees and other insects we owe, in no small degree, the beauty, sweetness and variety found in our wild flowers; he also tells us something of their botanical history, habits and uses, and proves that the slumbering and awakening of flowers is not a poetic fancy. This conversational lecture engages the "affections as well as the intellect" of us all; implanting a love for beautiful scenes that will, if cultivated, be a great solace and comfort in life's cares, sorrows and battles. As we arise to pursue our explorations we feel that we can never be again where we were on yesterday—that we look upon life with new interest and pleasure. All decide that Aunt Kate must deliver our

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next out-door lecture, which we know will be good, for she will give us a part of herself—no hard school-room lecture or lessons. The declining rays of the sun admonish at last that the afternoon is waning, and we must turn our faces homeward. As we separate, we feel thankful for this day's pleasure and profit.

The cheerful, invalid aunt at home, whose whole world is within those four walls, is cheered and made happy by the thought that she has had a place in the hearts of all, as each lays an offering before her. The bright flowers, birds' nests, cones and pebbles, make her forget pain, and live again, in memory, the happy days of childhood.

Soon after sunrise the succeeding day we assort our plants, first the wooded vines like Clematis, Bitter-sweet and clambering Honeysuckle, we will plant by the side of the high board fence, and over the large tree. Father says "they will make masses of fine green sometime, but perhaps not this summer." The large fernery and rockery we will bring together, planting some of the ferns in the form of a half-circle. On the shady side of the rockery, in the center of this circle, we will sink a large-sized, wooden bowl, and in it plant several bulbs of the arrow-leaved Sagittaria, with a few water-growing plants, like the Pickerel-weed, and some others; but we must not crowd them together, as the pure water adds to the beauty of our little wild-wood. Let us place a few pieces of charcoal in the bottom of the bowl to keep the water pure. Around the bowl, between the rocks, we will carefully plant our mosses and elegant ferns, that will soon throw out very green leaves, beautifully cut and delicately fringed. In all the interstices of the rocks, we place the ferns and delicate vines, particularly the Galiam or Goose-grass common everywhere. When the plant is in blossom, at a little distance it resembles mist; and when we suspend our large, moss hanging-baskets from the trees, filled to overflowing with vines, ferns, and grasses, we shall be greatly disappointed if our little spot of Nature is not a source of perpetual delight to all.

When our friends from Boston, New York, and Chicago visit us during the heat of the summer, they will enjoy the beauties of this sweet, cool, shady spot, they will tell us that such beauties in cities can only be enjoyed by the rich, that a single fern such as we are growing cannot be bought for less than 75 cents or a dollar; and

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such a fernery could not be gotten up by them for less than fifty dollars. What has the cost been to us? Absolutely nothing.

The wild Stevea, Honeysuckle, Moccason Flower, Jack in the Pulpit, Side-Saddle Flower, Wild Lily of the Valley, and many others, have their proper places assigned them, and after being carefully watered, and shaded four or five days, will hardly know that they have migrated to a civilized land. With a little care and careful watering when necessary, we shall expect a rich feast all the season.

O! that a deep love for external beauty were implanted in every heart; that we could forever catch beauty and inspiration from these

> "Bright gems of Earth, in which perchance we see
> What Eden was—what Paradise may be."

O! that our women spent fewer hours in our darkened houses, conning books for the richest recipes for cakes, pies, and puddings; embroidering "Moses on canvas," or sleeping to kill time, as many are doing to-day. I would have women develope into useful, happy, healthy womanhood, with warm heart, and hand ever ready for life's earnest work; and to man, "God's noblest work," we would say: make yourself in thought, word and noble life always worthy of that name, and as you go on planning, toiling, yet always rejoicing, we would say, "God bless you, every one."

STRAWBERRY CULTURE.

BY J. M. SMITH, OF GREEN BAY.

[Read before the Brown County Horticultural Society.]

There is probably no other fruit in existence that thrives and flourishes over so large a portion of the earth's surface as the strawberry. It grows, and bears its fruit beneath the heat of a tropical sun, and it nestles amid the rocky crags of Lapland, almost, if not quite, within the borders of the Arctic circle. Its home, and where it flourishes in its greatest glory in our country is, perhaps, north of the 40° of latitude. It grows to a greater or less extent upon almost all kinds of soil, except a very dry or a very wet one, though

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a light loom that is rather damp than dry, is, probably, the best of all soils for this fruit. The varieties are very numerous, and it is said that more than 400 varieties have been under cultivation in this country, within the last twenty or twenty-five years. It may, perhaps, be asked if the fruit flourishes over so large a portion of the earth's surface, if the varieties are so numerous, and the fruit is such a universal favorite among all classes, from the king upon his throne to the peasant in his hovel, why it is that comparatively so few of our people succeed in having and keeping up a good bed of strawberries? This is a fair question, and before proceeding farther, I will give at least a few of the reasons why so many fail in their attempts to cultivate this most beautiful and delicious of all small-fruits: And first, of all the hundreds of varieties that have been, and many of them still are in cultivation, not twenty are worth a moment's notice to the ordinary cultivator; and it is doubtful whether five, even of this number, will ever prove profitable for general cultivation. A plant may do well and bear nobly in one place, and under certain circumstances, and yet prove to be utterly worthless for general cultivation. It may, and sometimes does, do well over quite a large area of territory, and yet fail when widely disseminated. There is no doubt but Hovey's Seedling did well for a long time in Massachusetts. The Early Scarlet did well in New Jersey, and in some other portions of the country. Mr. Knox doubtless raised some splendid crops of the Jucunda. Others have raised some fine crops of the Triomphe de Gand, and the same may be said of a great many other varieties that have been successful under certain circumstances, and in certain localities, but have, either partially or wholly failed when the attempt was made to bring them into general cultivation. Hence it is always unsafe, and will generally prove to be a dead loss, to take a new variety simply because it is recommended. If it has done well in some localities, it is far from certain that it will do well in all localities, or when brought into general cultivation.

Another reason why many fail in strawberry culture is the following: The plants are divided into three general varieties, viz Staminates, Pistilates and Hermaphrodites, or, as they are generally termed, perfect plants. The first named, having only the stamens in the flower, are male plants, and of course never bear fruit, These may always be known by the flower, and generally by the

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appearance of the plant. As compared with the bearing plant, the leaf stem is longer, the leaf is also longer and narrower, generally of a darker green, and has every appearance of being, as it generally is, a very healthy and vigorous plant. In fact they are the very plants that one, not acquainted with them, would be almost sure to select, if he was selecting plants for a new bed. One of them in the middle of a bed of one square rod would nearly ruin it the first year. They grow and spread with such rapidity that they would very soon destroy all the bearing plants in the bed. I should as soon think of leaving a Canada thistle in one of my beds, as one of these plants; and yet I often see beds of pure staminates, not a bearing plant in the bed, and the owners wonder why they have no berries.

The Pistilate is the female or bearing plant, having pistils but no stamens in the flowers. They bear fruit only as they are fertilized by either the Staminates, or the perfect flower, as it is usually termed. The Russell's Prolific is one of this class, and will not bear if it stands entirely alone. I would recommend none of this variety to an amateur. They are more trouble; the crop not as certain, and no better when it is obtained.

The next is in reality a Hermaphrodite flower, which means having both stamens and pistils, and is a perfect flower, not only capable of fertilizing itself, but also of fertilizing pistilates, if there are any near it. The most perfect specimen of this variety is Wilson's Albany Seedling. I have examined many flowers but have never elsewhere seen so perfect a combination of both stamens and pistils as is seen in this little flower, and I attribute much of its wonderful productiveness to its perfect development in this respect. This plant was first introduced to the public about 1856 or 1857. It has by its own good qualities won its way in the public estimation, until it is safe to say that at least nine-tenths, if not nineteen-twentieths, of all the strawberries now raised for market in this country are of this variety. Here, then, is the plant for you to begin with. It thrives and bears well from the Atlantic to the Pacific coast, from the shores of Lake Superior to the Gulf of Mexico.

Now for the best way to cultivate it. Select a spot of good, rich soil of almost any kind, except very dry or very wet. Manure it heavily with common barn-yard manure, constantly bearing in mind that there is no danger of making it too rich, while if it is

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left too poor, failure is certain and inevitable, for a large crop of berries *will not grow* upon poor land. Plow or dig deep and thoroughly, having the manure well mixed through the soil. In short, put the ground in the very best order possible. We will suppose that this is done about as soon as the land is in first-rate condition to work in the spring. Now about the plants. The best advice that I can give, is to purchase of some one who has them in their purity, and upon whom you can rely. I have seen some wretched failures here for want of plants that were true to name, or if true, were of poor quality. Set out no plants that have borne fruit; none that have formed a trunk at the roots, and none that have any number of black roots. Select plants that have formed from runners the previous season, and *no others*. Having selected the plants, the ground being in good condition, mark off the bed in rows two feet apart. Set the plants from twelve to fifteen inches apart in rows. Set them a little deeper than they stood originally, but not deep enough to cover the crown or center of the plant. Press the earth closely around it and then water it, putting nearly or quite one pint of water to each plant; hoe them occasionally, at least as often as any weeds make their appearance, until July, when they will begin to send out runners. You will get a very few berries, about enough to let you know whether your plants are pure or not. Some of your plants have failed to grow, others are not looking well, take these out and train runners so that they will root, and make new plants where the first ones are missing. Now, suppose that your rows run north and south and are two feet apart. Let each plant form say six new plants, three upon the west side of it, about six inches from the parent plant, and forming a semi-circle on each side of it. This will leave you an alley one foot in width to walk in. After these plants are formed, cut off all other runners and keep the whole season's growth in these plants. Do not cover them until winter is about to set in, then cover them with straw or cheap hay to the depth of one to one and a half inches. I prefer pine leaves to any other covering that I have ever tried. It makes a light, close cover, and has no seeds to grow and annoy you the next season. Still, hay or straw will answer the purpose.

Do not be in too much of a hurry to uncover them in the spring. Leave them until the ground is entirely done freezing at night, and until they are about ready to commence their season's growth. It

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is very possible that this will make your fruit two or three days later in ripening; but in return for it, you will be almost certain to escape all harm from late spring frosts. Many persons only uncover the plants, and leave the covering upon the beds, in the rows, and between the plants. I prefer to take it entirely off the bed; hoe the ground all over, and be sure that everything in the bed, except the plants, is killed. Now put on a good coat of fine manure, or wood ashes, if you have them. If ashes are leached, use one bushel to the square rod; if unleached, use half that amount. I have taken it for granted that you have so arranged your alleys that no water can stand on or about your bed. If you have not done this, you have very likely made a mistake that will prove fatal to a large crop. But now you have arrived at a point where a good supply of water is an absolute necessity, and if it is not supplied from the clouds, artificial watering must be resorted to and kept up, or a very few days of drouth may ruin what promised to be a very valuable crop. Put on water enough to keep them perfectly thrifty and fresh all the time. Now, if you have carefully followed directions up to this time, you ought to have at the least forty quarts of beautiful berries to every square rod of ground.

After the berry season is over do not neglect your bed and let it become over-run with weeds, but clean it out, and loosen up the earth carefully; put on some more manure and then let the whole ground fill up with runners. If some of the plants look old and worn out, as they will be very likely to do, if you have had a large crop, dig them up and throw them away and let the ground fill with the young plants. Cover again in the fall, the same as the first year. The following spring, when you rake off the covering, some of the more feeble of the plants will probably come off with the covering and the old leaves of the plants, this will do no harm, as the bed will probably be covered very thick with plants, and there will be plenty left. Clean out all of the grass and weeds and then manure the same as on the previous spring. This season your berries will not be quite as large as the first year, though your crop will probably be larger. After you have picked your second crop, it is better to turn the bed under and raise a crop of cabbage or turnips. The bed is rarely worth keeping more than two years. This will, of course, make it necessary to set a bed every second year, if you wish to keep up a constant supply of fruit.

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The foregoing has, with but little variation, been my mode of culture for many years, and I certainly am not boasting when I say that I have been very successful. I obtained the Wilson in 1860, and since that time have failed but once to have at least a paying crop, and most of the time very profitable ones. It may very properly be asked, "Would you set nothing but Wilsons?" In reply, I say set nothing but Wilsons in your principal bed. Be sure that you have a full supply of these, and then you may experiment upon other varieties as much as you choose; still it is better to touch them lightly, for the probabilities are that you will never get pay for your time and money with any of them. But says one, "The Wilson is not a first-class berry; it is very acid, and needs a great amount of sugar to make it good." This is true of much of the fruit that is seen in our markets. The berries are picked as soon as they are red, and before they are in reality ripe. During the last fifteen years there have been many friends and visitors at my house during the strawberry season. We have always intended to treat them generously from our crops, and have tried to have well-ripened fruit for them. I have no hesitation in saying that two-thirds of the whole number have taken the Wilson for their second dish, even though we had such noted varieties as the Jucunda and the Triomphe de Gand upon the table.

I have been trying for years to get some good variety that would be a little earlier than the Wilson, and also something a little later, and thus prolong the season, but have not yet succeeded. In time, we shall doubtless succeed in doing both, and perhaps get something that will supersede the Wilson as a market-berry, but I, for one, do not propose to give that up, until I am sure of something better. I believe that any one, who carefully follows the advice here given, will almost invariably succeed in raising a crop of this, the best of our small-fruits; and if this paper shall be the means of encouraging even a few families to raise an abundant supply for themselves or their neighbors, I shall be satisfied with it and its influence.

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FLORICULTURE.

BY MRS. BOYNTON.

[Read before the Lemonweir Valley Horticultural Society, at New London.]

My theme is one in every-day use. We seldom peruse a paper or periodical of any kind without finding something in regard to floriculture, consequently I may not be able to enlighten you much on the subject. I shall endeavor, however, to render it as instructive and interesting as possible. Illustratively, flori and horticulture are so nearly allied, one being but the ornamental part of the other, that it will be difficult to separate them. Flora is the latin for the "Goddess of flowers," and horticulture, from *hortus,* a garden, *colo,* to till. Historically, we are enabled to trace our flora as far back as the origin of man. Indeed, the vegetable kingdom maintains toward him, more than one relation. Besides its obvious utility as the source of his food, shelter, clothing and medicine, it furnishes an exhaustless field of interesting study; hence the study of nature, though this beautifully adjusted relation, becomes a source of the purest delight to him, being ever accompanied by fresh discoveries of truth in the plans and operations of a sublime intelligence.

Sacred history informs us that gardening was man's first occupation; it has numbered among its votaries, the wisest and best of his race. His earliest effort to emerge from a state of barbarism was directed to the tillage and beautifying of the earth. The first seed which he planted was the first act of civilization and refinement. The mechanic arts were next developed, then commerce commenced, and manufactures soon succeeded. As wealth increased, ambition manifested itself in the splendor of apparel; costly mansions, surrounded by luxuriant parterres, science, literature and the fine arts were unfolded, and a higher degree of civilization was attained.

From Egypt, floriculture gradually passed into Palestine and the entire Orient. Even the Israelites are said to have been rebuked by their prophets for their extravagant revelling in luxury. Their royalty reclined upon couches covered with petals of odoriferous flowers, particularly the rose. Persia made roses an article of commerce. Large plantations covered her soil, for the manufacture of

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Attar, which commanded such fabulous prices, it was only within the reach of the nobility. When Athens, too, was at the height of her glory, her citizens feasted at tables laden with beautiful flowers brought from every known part of the world. Slowly floriculture found its way into western Europe. France seems to have been the leader, for we are told that Charles the Second built the first hot-house in England for the preservation of rare plants he had procured in France. Their introduction into Germany and Italy was still later; and next in order, the United States became a participant in their love and culture.

The first mention we have of the naming of plants, was in the first century of the Christian era, a work written by Dioscorides, giving an imperfect description of about twelve hundred, the medical qualities of which were more attended to by the author, than the description of their characteristics, or their philosophical classification. This work continued the only one in use for fifteen centuries, when the Persian and Arabian physicians added about two hundred more to the list, making in all, fourteen hundred. About this time Germany founded historical botany. It was soon discovered that Dioscorides' method was not at all adapted to the description of German plants; hence arose controversies, thereby producing a large number of writers on the subject, among which were Linnæus, a Swede by birth, and celebrated naturalist, who gave to plants a more correct classification, and their two sexes.

One of the peculiarities of vegetables is, that they reproduce each other by means of seeds. Now, it was observed by Linnæus, that varieties existed in the organs or parts by which plants reproduce their own kind. He therefore originated a mode of classifying them with regard to their varieties. One of the organs by which plants reproduce each other is called the pistil, another is called the stamen; some plants have one stamen, some two, and some a considerable number; some have the stamen in one part of the flower, and others in another. Some have them in different flowers from the pistil, and others on the same; while a certain kind, including mosses and sea-weed, do not show any. Out of these various peculiarities, expressed in the Greek language, Linnæus formed the designations of twenty-four classes of plants. Each of these classes he divided into various orders, with regard to certain minor peculiarities of the same kind. Each of these orders, again, he divided

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into genera, with a regard chiefly to peculiarities in the flowers. The genera were finally divided into species, each of which was a particular plant, bearing one constant character. By means of this classification a naturalist is never at a loss in giving a brief and significant account of any plant that may be presented to his notice. When we look upon a simple appearing little plant, and study all its parts, the leaf, the stem, the roots, the sap, and the flower, with its petals, pistil, stamens, corolla, and polycarp, and observe all their functions, and then follow Linnæus, step by step, in his indefatigable researches after natural truths, considering, at the same time, the obstacles he had to encounter, in the way of ignorance in the people; their sloth to accept any new theory; in a word, all that makes life to be endured, the total want of encouragement—we feel for the man a sort of awe, amounting to almost worship. Like the brave pioneer, who shoulders his ax and plunges into the wilderness, regardless of savages and minor hardships, Linnæus opened, and made easy the way for his followers in natural science.

In these modern times, another classification, called the natural system has been invented by a French naturalist, Jusseau. It proposes to arrange the plants according to the greatest number of peculiarities which they have in common. Again, plants require particular soils, and a certain amount of heat to enable them to grow. Upwards of eighty thousand have been ascertained to exist. The principal varieties, in their size and figure are observable by all who look over the surface of the soil, without any aid from science. We can thus class in our minds, the moss, growing upon the the rocks, or the roof of some old cottage; the heath blooming upon the moorland, and the grass overspreading the meadow; the flowers adorning the field or garden; the grain loaded with the food of man; the shrub luxuriating in the pleasure-ground, and finally, all the varieties of trees, from the slender birch, up to the stately elm and oak.

Allow me to give a hasty explanation of the manner in which plants produce their varieties. At the bottom of the pistil is placed a cell, usually of an oval shape, called the seed organ, or ovarium, on account of its containing the seeds. To these seeds a germinating power is communicated through the pistil, by a species of dust, called the pollen, which is produced and shed by the stamens. In plants which have stamens and pistils on the same

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flower, the pollen is easily shed from the one part to the other, the stamens being, for this purpose, below the pistil in drooping flowers, (as the fuchsia) and above it in upright flowers, so that the pollen may fall upon the place where it is to perform the office assigned to it. In some plants, such as grasses, when the pistil and stamens are on separate flowers, the pollen is conveyed to its proper place, by means of the wind, and the busy bee gathering it on his feet. Nature makes wonderful provisions for overcoming difficulties. Hundreds of amateurs in France, Germany, and England spend their leisure hours in experimenting, for the purpose of producing new varieties. In the single year of '73, I noticed in the floral catalogues, over thirty of these so-called novelties, belonging to the Rose, Azalia, Pansy and Carnation tribes. These seem to be their specialties. It is surprising to mark their wonderful improvement in size color and symmetry.

Another very important item in the cultivation of plants, which we cannot omit noticing, is their sustenance. They derive their support in nearly the same manner as animals, from food and air. From the soil, the spongy ends of the roots take in moisture, containing not only pure water, or the oxygen and hydrogen gases, but also certain earths and salts. A vast number of invisible upright hollow tubes, which prevade the stem and branches then conduct the moisture, or, as it is more usually called, sap, through the body of the plant, till it arrives at the leaves. In daylight about two-thirds of the oxygen and hydrogen contained in the sap, flies off in vapor, through the multitude of pores spread over the upper side of the leaves. The quantity of moisture thus sent forth by plants, is surprisingly great; a common helianthus, or sun-flower, has been known to exhale thirty ounces in a single day. Similar pores on the under side are, at the same time, engaged in inhaling carbonic acid gas, which forms a small part of the atmosphere and is receiving constant accession from the lungs of animals. The sap thus relieved of so large a portion of the oxygen and hydrogen, and charged with carbonic acid gas, returns in most plants along the exterior of the branches and stem, immediately under the bark or skin, where it deposits itself in new vegetable matter, so as to add to their thickness.

Light, too, is essential to the health of plants. In the night time, or planted in a dark place, plants do not give out the oxygen and

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hydrogen of the ascending sap; on the contrary they take in oxygen and give out carbonic acid gas, hence, to deprive them of light for any length of time, renders them unhealthy. It is the carbon, mingling its dark hues with the yellow of the sap, that forms the green color so prevalent in the vegetable creation, and so refreshing to the eyes of man.

The science of gardening in her literary possessions, stands in the front ranks. Scores of books, filled with valuable food for the mind, have been written by the ancients, the bards, scholars and philosophers of the classic ages. Pliny, Luculus, Hesiod and Xenophon, all have transmitted to us some work on the culture of flowers and general gardening. The Germans, too, as in all the branches of letters, science and arts, have given to the world an immense number of books treating on this subject. England, France and Italy are also rich in the possession of garden literature, and last, though not least, our own United States, though a mere novice in the art, can present to her people a choice library on gardening in its various branches.

In all ages and countries, flowers have been universally cherished. "Who," asked "Boursault, does not love flowers." They beautify our homes; they embellish our gardens; they add brilliant luster to our festivals; they interpret our affections; they are the testimonials of our gratitude. We present them to those to whom we are under obligations; they are often necessary to the pomp of our religious ceremonies, and they seem to associate and mingle their perfumes with the purity of our prayers, and the homage which we address to Almighty God. Heroes are crowned with them; the diadem of the seasons glitter with them, and they constitute the mystical language of poetry. We are told that Descartes prosecuted with equal ardor, Astronomy and the culture of flowers. The great Cordi devoted leisure hours to that delightful pursuit, and the vase of flowers was daily renewed upon the table of Lord Bacon, while composing the volumes of his sublime philosophy. In a word, what would mother earth be to man without them? When in winter we behold the leafless shrubs and trees, baring their naked branches to the cold blasts of Boreas, doing penance, as it were, for past gayeties, we can form some conception of our condition if deprived of them. In the cities of Europe, flower-markets for the sale of bouquets and ornamental plants are as common as those for fruits.

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La Vert informs us that the windows of the poor working classes are densely crowded with plants, some of them beautiful enough to rank with the choicest specimens. Also fairs are held for the exhibition of the plants of the poor, and they are rewarded with enticing premiums for their finest.

In the new world these delicate daughters of the sun, did not receive that attention which indicates the highest state of civilization until within the last thirty years, though now we can safely say the fondness for them is increasing rapidly throughout the Union. They adorn the country seats of the opulent, and the dwellings of honest industry. Botanical gardens have been established in most of our states, and our cities can boast of their marts and floral exhibitions.

Florists are becoming numerous, and horticultural societies and fairs are springing up everywhere. Our postal laws offer us grand facilities for transmitting both plants and seeds, which gives to all a chance to gratify their tastes, and it is not unfrequent that we meet in the remotest places with plants imported from all parts of the world. In our own little village, we have, in one single garden, over fifty varieties of that queen of flowers, the rose, besides a choice collection of Holland, Japan, and Cape bulbs; also, a large variety of shrubs, deciduous and evergreen trees, while the assortment of green-house plants, dispersed through the village, cannot be excelled anywhere. It is not only wonderful, but encouraging to witness the progress made by our citizens in beautifying their homes with floral ornaments. Scarcely a door-yard but contains at least one or two beds destined for some special floral pet; else a few pot-plants tastefully disposed of about the piazza and lawn; and in no town that I ever lived were the ladies more enthusiastic or successful in the culture of plants than in New Lisbon. Many of them are connoisseurs of the first order. I have reason to congratulate our horticultural society on their location, for every evidence indicates that they will meet with a hearty co-operation from the ladies of New Lisbon, which insures certain success. With a few remarks on the subject of bouquet-making, I will close.

Many people descry the artificial arrangement of flowers. But how shall we otherwise use them to advantage? The moment we begin to tie or crowd them together, we leave nature, and ought to do so, only to study art. In their simplest arrangement, form and

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color must be studied to produce the best effect. Who has not seen bunches of beautiful flowers cut from the garden and tied up in the least artistic fashion, with the most stupid results? Probably the simplest, easiest, and commonly the most desirable method of using cut-flowers, is arranging them in vases, the more loosely and unconfused the better. Crowding is to be particularly avoided, and to accomplish this readily, a good base of green is required to keep the flowers apart. This filling up is very important, and the neglect of it is the greatest "faux pas" of the uninitiated. Spiked and drooping flowers, with branches and sprays of delicate green are indispensable to the grace and beauty of a vase-boquet. Nothing is so strikingly beautiful on a refreshment table, as a handsome center-piece of flowers. Judging the merits of a bouquet is a very difficult point, as exhibitors and judges have each their own notions of excellence.

HORTICULTURE AND HOME.

BY N. F. LUND.

[Read before the Lemonweir Valley Horticultural Society.]

In the beautiful month of June, when all nature is crowded with life and freshness, and the eye meets at every turn, a world, clothing itself in growing beauty and grandeur, we meet for the festival of the first fruits of the year. It is most fitting that we thus socially enjoy the earliest returns that the garden gives us for our labor and care, and that we make our meeting bright and glad with flowers. This profusion represents, not the narrow limits of a single garden, but the combined products of all—gathered little by little, from yon scattered homes, and placed here, that together all may enjoy what each has separately enjoyed while growing—and we might most appropriately name this a convention of the first fruits and flowers.

To produce this endless variety of form, shade, coloring, and perfume, how simple the process. We planted the seed or root that showed neither beauty in form or color; it blossomed, and we bring it here to-day, the beautiful flower or fragrant fruit. Each does

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the same, but no two bring just the same, hence the added pleasure from combined tastes on which to feed the senses, and in this social way, to make each other wiser, better, and happier. Such occasions are but the natural outgrowth of our desires for companionship and social life. These fruits and flowers, assembled thus in convention, giving an added charm to life, have been gathered from the most sacred place on earth—the home, which should also be made to us all the most beautiful place on earth.

When speaking of fruits or flowers, of the lawn or garden, the orchard of landscape gardening, (or more properly of landscape architecture,) our thoughts turn instinctively to the home, around which every form in horticulture clusters. The field, the prairie or the forest, although abounding in wild flowers and fruits, have no place in our mind when we use this term. We speak and think of them only as at a distance—removed from the home. But in and around the home our every sense is, or should be, constantly met by some useful or pleasing form in nature that we have planted or improved, and the words Horticulture and Home should be inseparable.

"The improvement and ornamentation of house and home surroundings," is enjoined by the constitution of your society, and I understand it to be one of the chief objects you aim to accomplish. Less than this, you could not require, if you would fulfill the true mission of a horticultural society.

But why this requirement of your association, and that it must needs be one of the chief aims in your work? Simply and only because you see and feel that there is necessity for it. Homes without adornment are not rare in our newly settled State; we see them wherever we journey, standing black and bare, exposed to scorching heat or driving cold. Upon such a dwelling we can scarce look without a feeling of sadness, as we think that it is somebody's home, and the wish—almost prayer—will constantly arise, that these "waste places" might be made glad by the presence of shady groves, or fruits and flowers; that they might become a cheerful present blessing to age and youth, and that could be remembered with pleasure in the busy after-life, when memory turns back to the home of childhood.

Of the many forms of home adornment, none are so easily made, or at so little cost, or in such endless variety, or with such pleasing effects as may be found in the thousand forms in horticulture.

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From the little patch of closely-trimmed green, with its simple shrub before the humble cottage, or the broad green sward, closely mown, and dotted with fruit and shade-trees, around the farmer's home, to the broad-spreading lawns and pleasure-grounds of the suburban home, adorned with fountains and statues, all degrees of home adornment may be found that taste shall desire.

It is not my purpose to attempt instruction in the adornment of homes, for it seems more in accord with an occasion like this of to-day, that we seek to encourage all efforts to make our homes cheerful and bright, than to give rules for accomplishing it. Our tastes are so various that we scarce need rules, but rather the desires and will for making pleasant homes.

The average rural home of America is doubtless superior to that of any other country. But it is not yet what it should be for so intelligent a people. Fragments of time, leisure half-hours and hours might be more generally given to this work, thus utilizing in the adornment of homes what now too often goes to waste. Yet it is an encouragement to know that the average is constantly rising, and that yearly there is more comfort in our homes. If we go back in contrast only to the beginning of the present century, when it was thought by the farmers a waste of money, (for "time is money" was the old adage then as now, and it cost but time,) to give a few hours of spring and summer to "clearing up" around the farm-buildings, planting trees and shrubs or working in the garden, we shall find the difference marked and distinct, and that we have advanced many steps towards a higher average for the home. Then, few except the rich thought of expending time or money for making the home surroundings beautiful. Here and there some humble dwelling showed that there was a natural refinement and taste within, that must be gratified. But most of the poor deemed it only the prerogative of the wealthy, to have and enjoy these things.

Unquestionably there are many to-day who have false ideas of the cost of the simple horticultural adorning of a country home. These are doubtless largely obtained from what they have seen or heard of the extravagant adornings of suburban homes, and as they have not sufficient means to do great things, they will not do the lesser, or they may be indifferent in this matter. These false ideas, and all others in whatever form, we should labor to correct, and to convince all such that it is not the great outlay of money, but the

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simple display of skill and taste, without even the expenditure of money that may most attract.

A short time since, while in a large western city, I walked out to see the grounds around a residence of which I had often heard. I found them all that had been represented. Everything was in the most perfect order—the fountains playing; the statues standing cold and grand; the hedges and evergreens trimmed to an exact pattern; the grass that had grown half an inch since it was last cut, and each spear of which seemed combed to grow erect, was being fretted with numerous lawn-mowers; the walks and drives so painfully clean that a fly would hardly dare to rest there; and with the exception of a few grand old trees, there was little of nature's work to be seen—she was pushed aside and allowed no chance for any display, except to make the annual growth. All else was artificial, grand, stiff, and stately.

One year ago, in returning to a smaller city in this State from a long and hot day's drive, my companion called my attention to a little cottage we were about to pass, requesting me to drive slowly and examine it, also remarking that this was a favorite drive out of the city, the chief attraction being the cottage. At first sight I felt a sensation of pleasure and rest. There was a quiet, peaceful beauty all around. Nature was not crowded out here, but the assisting hand of refinement and true taste had helped to make her more beautiful. The cottage was small, built of hewn logs with frame piazza. All was painted or whitened to the whiteness of snow. On the piazza were set around, plants in bloom, delicate vines climbed around the pillars, (if they could be called by so stately a name,) and near by the roses bloomed. In front, the grounds gently rising towards the house were ample, well filled, not crowded, with shrubs and trees, the grass was neatly mown, the gravel-walk tidily kept. Through the open doors were seen the year's stock of wood neatly piled, the little barn and sheds having the same neat appearance. The garden near at hand, and at a little distance the thrifty orchard, while still beyond and around lay the twenty acres which made up the farm, the boundaries of which could be easily described without the making of a fence. Such is the home of the man who would be called poor by the great world, and yet he is rich, with but little money, living far higher than a prince in this, his perfect, rural home. The little cottage is a standing encourage-

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ment to all, however poor, to beauty their homes, and I ask my friend who has not time or means to beautify his home, which of the two just described he would choose for the home of his children.

Yet the rich build and enjoy their stately homes and magnificent grounds, and decorate them with the highest art. I am glad they build them; it gives work to otherwise idle hands, and adds largely to the enjoyment of others. But neither you or I need them, and should not covet them; neither should we covet the little cottage. But we might confess to a very strong desire to have one just like it.

The restlessness of youth among the rural population, and the constant desire to throng to the great cities, (already overcrowded,) where, during leisure, they may find pleasure and excitement in the bustle and whirl of the great, busy world, evidences something radically wrong. They will not appreciate that another extreme of society exists there, sinking to a greater depth than they ever dreamed of in their country homes, to the influence of which they may become exposed, and into whose depths they, too, may sink.

We are proverbially a restless people, demanding change of excitement. We are also a hard working people, requiring recreation and amusement; and while I believe we are entitled to all the enjoyment that we can extract from life, yet that enjoyment should be not only pleasurable, but useful, and in that home and social life we can best find what we most crave.

Would you save the children to your home? Then make it happy and beautiful; an attraction from which nothing can draw them. Teach them to love, study and improve nature. Give them books, interesting and useful, which will add pleasure to instruction,—something which they can use in life's experiences for their own and others' benefit. The study of nature in all its forms is refining and elevating, and gives charms to the education of the child. I know a boy, who, with only a few lessons and the encouragement of father and mother, has become as enamored of the study of birds, fishes, and insects as any child could be by fairy tales.

It is the duty of parents to make home so bright and happy, that if the children shall wander from it into the world they will look back to it and say with Byron: "Ah! happy years! once more, who would not be a boy."

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The rural cottages of the British Isles have a world-wide fame as "par excellence," the houses of the earth, and their delights are published in poetry and song. Hidden away among trees and vines and flowers the simple structure becomes a resting place for age, and paradise to the child, and "'Tis Jamie's home and mine," is heard wherever the children wander over the world.

Horticulture has been termed "the Fine Art of Agriculture." In expression of form, color, or showy magnificence this is true, but it is more than this, and includes the "useful" as well as the "polite arts." Thus the garden of herbs and vegetables, while giving no expression of the beautiful, represents the useful, in horticulture. The first bearing shrub, or tree, or vine represents the "useful and polite arts" combined, while the flowering shrub, the lawn and flower-border represents "decorative or polite art."

Poetry is not all written in verse, but much of it in prose, and a vast deal is never written or spoken but only felt and lived, and there are thousands of nature's poets who never wrote a stanza. All pictures are not from the painter's brush, but she who selects, combines, and harmonizes in garden border or bouquet the varied shades and colors of natural flowers, may be as truly an artist, and the colors with which she paints as truly nature's as he who mingles the pigments with oil on his pallet, and spreads it on the canvas. "The line of beauty" is not confined to sculpture. True art may be shown in the winding path of garden or lawn; in the grouping and pruning of trees; in training the shrub or the curving of the vine. Thus we may claim in the broadest sense that horticulture is "art in nature," and its office is to surround home with the useful and beautiful.

A late English traveler writes admiringly of an American home which he found in his journeyings among us: Hepworth Dixon, in his "New America" sketches a most charming pair of young Americans whom he had met conquering a home from very scanty materials, and amidst the most discouraging difficulties. The man is a squatter on a patch of forest land, which he has redeemed from loneliness. Yet all is comfort without a sign of poverty. He says: "Walk up this garden-way, through these neat little beds of fruit-trees, herbs, and flowers. This path might lead to a gentleman's villa, for the road is wide and swept, and neither sink nor cess-pool, as in Europe, offends the eye. Things appear to have fallen

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in their proper places. The shed is rough, strong and snug—a rose, a japonica and a Virginia creeper climbing around the door. Inside, the house is so scrupulously clean that you might eat your lunch as comfortably off its bare planks as you could from the shining tiles of a Dutch floor. Something like an air of gentle life is about you; in the little parlor there are a vase of flowers, a print and a bust of Washington.

"You see at one glance that there is a bright and wholesome woman in the house. Annie Smith is the type of a class of women found in America, and in some parts of England, but nowhere else. In station she is little above a peasant; in feeling she is little below a lady. She has a thousand tasks to perform; to light her fires; to wash and dress her children; to scrub her floor; to feed her pigs and cows; to fetch in herbs and fruits; to dress and cook the dinners; to scour and polish her pails and pans; to churn her butter, and press her cheese, and make and mend the clothes. But she laughs and sings through these daily toils with such an easy compliance, that her work seems like pleasure, and her care like pastime. She is neatly dressed, beyond, as an Englishman might think, her station in life, were it not that she wears her clothes with a perfect grace."

Our author very naturally retains his English ideas in giving the station in life of Annie Smith. But we call her more than "peasant," and more than "lady"—a true American woman; a mother whose children will be a blessing to her, and will even bless her, and whose memories, when they have left their home, will often lead them up that garden-way, past the rose, the japonica, and the Virginia creeper climbing around the door, into the parlor, with its vase of flowers, its print, and bust of Washington. Such mothers are the "angels of the covenant" that our American homes shall be kept pure and beautiful.

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APPENDIX.

REPORTS OF LOCAL SOCIETIES.*

FREEDOM HORTICULTURAL SOCIETY.

The Freedom Horticultural Society was organized February 6, 1875. Not much previous notice was given, and the evening was intensely cold. We have fourteen members. Owing to the want of time, no discussion was had at the first meeting, but we propose to have such. The officers for the present year are:

President—C. Hirschinger, P. O., Baraboo.
Vice-President—L. T. Albee, Baraboo.
Secretary—W. C. T. Newell, North Freedom.
Treasurer—S. D. Shultz, Baraboo.

JANESVILLE HORTICULTURAL SOCIETY.

I have the pleasure to report the following persons as officers of the Janesville Horticultural Society for the year 1874–5.

President.—Alexander Graham,
Vice President.—Geo. J. Kellogg.
Secretary.—F. S. Lawrence.
Treasurer.—D. E. Fifield.

We have held occasional meetings during the season for discussions. Our annual fair was held in conjunction with that of the Southern Wisconsin, in September, 1874. The exhibition of Fruit

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and Flowers was creditable, considering the season and the earliness of the time in which the fair was held; some two or three weeks earlier than common.

RICHLAND COUNTY HORTICULTURAL SOCIETY.

The annual meeting of this society was held in the court-house at Richland Center, on Thursday evening, September 17, 1874. Much interest was manifested in the objects for which the society was organized. Twenty-four new members were received. The following officers were elected for the ensuing year:

President—A. G. James, Richland Center.
Vice-President—W. D. S. Ross, Richland Center.
Secretary—G. H. Putnam, Ash Ridge.
Treasurer—John Winn, Richland Center.

After the transaction of the regular business, there was an interesting discussion on the fire-blight, and other subjects pertaining to horticulture.

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* These reports were made out and sent to the Secretary in due time and form, but were not forwarded to me until long after the other reports had been published, and hence they could not appear in their regular place. It was thought best to insert them at the close of the volume, so as to comply with the provision of law relative to the distribution of our Transactions, and secure them to the societies reporting.

F. W. C.

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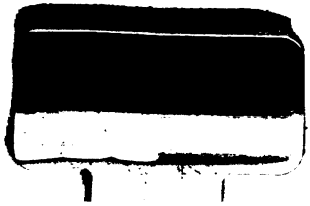

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